# The Builder.

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## *Ornamentation.*

RECENTLY a discussion took place in the rooms of the Society of Arts, on a paper read by Dr. Christopher Dresser, "On Ornamentation considered as a Fine Art," and which was partly printed in these pages. A number of capable men took part. The tone and temper evinced seem to have been all that could have been wished, and such as to lead us to speak of the proceedings with cordial respect, though we are forced to consider that Dr. Dresser, carried away, perhaps, by a rhetorical flow of language, rather departed from that sound, practical ground on which any true theory of ornamentation must be legitimately based.

We feel the less hesitation in offering our criticism, from the fact that the lecturer, in his reply, contended that some of the opposition evinced to his views by one and another of the speakers had been founded on mistake of the purport of what he had really advocated. He disclaimed a "horror of figure drawing." He disclaimed the use of floral ornament in decoration, for which he was regarded as an advocate. Perhaps the cause of this misapprehension, as well as of that with which we have more directly to deal, arose from the want of beginning at the beginning, and of stating, in plain, simple, definite language, what it was that the speaker wished to express, and what he wished to condemn.

It is not that there was an absence of summary of main points, or of definition of the sense in which certain terms were used by the lecturer. All this there was; but in those very definitions we find the lack of that clear, precise grasp of the subject for the necessity of which we contend. Thus, to say that true ornamentation "is of purely mental origin, and consists of symbolised imagination or emotion only," is to say what we feel pretty certain cannot be understood or appreciated by the pupils of any school of art, from the difficulty which we ourselves experience in attaching any very distinct meaning to the utterance.

If it is meant that ornament should, as a rule, be symbolic, we differ altogether from the view. Ornament and symbol are distinct. There may, of course, be ornamental symbols and symbolic ornaments, just as there may be alliances and interdependences in all branches of art. But the idea of ornament is essentially different from that of symbol; and as the origin, so does the history of either differ. Symbol, as far as we can generalise from all the known facts of human history, undergoes a marked and well-known set of phases. Its first function is that of the teacher. It intimates something, perhaps too subtle, perhaps too sacred, for constant iteration in words. It appeals to the spiritual sense, and strives to keep up continual memory by a visible sign. The symbol, at first regarded in this light, soon masters more and more sympathy. It becomes venerated, then worshipped. Finally, reversing the law of progress of Comte, it sinks into an absolute fetich. That this has been hitherto the case is the outcome of all forms of idolatry. Thus it is then the case, and likely so to remain, no impartial person who is familiar with Southern Europe, or, at least, with the Iberian, Italic, and Hellenic peninsulas and islands, is likely seriously to doubt. Ornament, on the other hand, commencing in simplicity, becomes first rich, then gorgeous, then overloaded, increasing in elaboration until it is lost under its own splendour, and becomes a mere vehicle for the display of wealth.

Again, as to ornament being of mental origin. We can attach no distinct meaning to the expression. We regard ornament as the æsthetic treatment of surface, or the production of a finish that shall delight the eye. Ornament thus regarded is the complement of structure. The latter follows the rules of science; the former, those of art. Not only so, but of the two main modes in which external objects affect the eye, by form and by colour, we hold that structure chiefly regards the first, and ornament the second. The colour of a substance structurally adapted for a given purpose, as a column, the rib of an arch, or the bone of a vertebrated animal, may be regarded as the accident of the substance of which it is composed. The forms, on the other hand, of a diaper, or a moulding, or a textile pattern, are chiefly apparent as the outlines of light and shade, or of blending or contrast of colour. Colours and shades are, of course, arranged in definite forms, but these die into one another often with a misty uncertainty that adds to, instead of detracting from, the harmonious beauty of the composition.

Great stress was rightly laid on what is called the *truth* of ornament, and ground, long fought over in the *Builder* of former years, was retrodden. But in applying a moral turn to an æsthetic question, we run the risk of mistaking illustration for argument. We are in danger of implying either too much or too little, either of announcing, it may be in graceful phrase, that which every artist, worthy of the name, will admit, or of insinuating that which many will deny. If for the general term truth, on the other hand, we substitute the particular form of truth to which we refer, this confusion will not arise. What is frequently meant by truth is, keeping the special harmony existing, for example, between certain substances and certain methods of treatment. There can be no doubt that is a very essential element of excellence in art. It is one to which due attention has been by no means called. But it has been instinctively appreciated by the greatest artists, and in this appreciative treatment lies one of their chief claims to admiration. Thus wood, stone, metal, gems, textile fabrics, all have their proper methods of structural treatment, intimately connected with which is the proper method of ornamental treatment. To apply a method of ornament fitted for wood, to stone, is out of keeping;—it is an error somewhat of the same sort as to apply structural formation proper for wood to stone. We have notable and famous examples of this in the most ancient relics of art in India. The gates of the topes—take the Sanchi Tope, for instance—perfect marvels of patient and elaborate ornamentation in stone, are essentially wooden in their treatment. No artist can doubt that the masons and stonecutters who reared those lofty and ornate rails, imitated the work of men who preceded them, and wrought in wood. The wood has perished, but the stone is an enduring testimony to the former existence of work in that material. Nor is there any doubt that those curious and intricate carvings are out of keeping as sculpture in stone.

For such reasons we altogether oppose such a statement as, that "all graining of wood is false, as it attempts to deceive, the effort being made at causing one material to look like another, which it is not." We do not hold this to be the case. To grain an iron column or girder might come under the latter objection. But take the case of a well-made door. No doubt, for well-made internal work, a good varnish that will show the natural graining of the wood is the best and most appropriate ornament. But for wood exposed to rain, or ordinary joiners' work, paint is needed. And a well-painted and grained door may be a very agreeable variety to the constant repetition of an unbroken wash of colour, recalling nothing at all. Many think it is. They think the grained door, if well executed, in better keeping than the self-coloured door. And while we will admit that, in many instances, that question may come within the fair limits of private and personal taste, we altogether deny the propriety of stigmatising the grained door as immoral and soul-damning.

Again, with reference to the use of the word "imitation." The word is very comprehensive. In one sense—on the very highest authority, that of Aristotle,—a sense which has been so well illustrated by Horace,—it is the germ of all art—poetic, dramatic, or pictorial. In another sense, when it is servile and base, it is a mark of the decline of art. The proper limit to the fidelity of imitation, in every case, is again a question of "keeping." It is here that the true province of the conventional in art occurs. Absolute mimicry is not artistic imitation, which may rather be defined as translation or rendering. Here, again truth means that which is appropriate at once to the subject, and to the material in which it is rendered. The exquisite beauty of some of the Gothic foliage work would be very ill replaced by plaster casts or electrotypes of actual foliage applied to the building, however skilfully this was done. There is the truth necessary for the material—stone,—as well as the truth appropriate to the object represented—foliage,—to be regarded. It is the instinct of the artist which teaches him where to draw the line; how far to conventionalise, and how far to imitate nature.

The true nobility of ornamentation cannot be for a moment doubted by the intelligent student of nature. The inorganic and the organic kingdoms are alike robed in wonderful beauty. Apart from that beauty which is structural, and, as such, is rather a matter of intellectual than of æsthetic appreciation, the wealth of pure, lavish, exquisite ornamentation that surrounds us is untold and unexamined. Without entering into the question of final causes, it is yet impossible to deny that many forms of beauty exist, as if for beauty's sake alone.

If we seek for that natural example in which there are to be found, at the same time, the greatest indistinctness of structural definition and the greatest wealth of pure ornamental beauty, we may instance a purple sunset. The glorious colours into which the radiant light of the sun is refracted and reflected, when the great planet is near the horizon, assume their most brilliant tones. Crimson and purple, lining vast pillowy masses of clouds, passing into the very splendour of the luminary, or relieved against the pure pale blue of the upper sky, form such studies as no human artist has rivalled. Two main laws are apparent amid this lavish luxury of beauty. There is a harmony in the limiting forms,—a unity, not a uniformity. The outlines of the clouds are accordant with one another. Without need of any pedantry of nomenclature, they have been formed by similar meteoric causes, and present a strong family likeness. So, also, is there a harmony or keeping

in the tone of the colouring. These two principles regarded, how infinite is the variety of a cloudy sky. If we regard the heavens on a starlit night, a different, but not dissimilar, lesson may be traced. We look, it may be, at the indications of a great structural universe. But suns and systems strike our eyes only as points of light. We have the pure deep-vaulted arch of heaven lighted up with "eyes of fire," spangled in an orderly disorder, of which the secret altogether mocks our intelligence. All that we see is the wonderful beauty. The contrast, on the one hand, between the solemn depth of the sky, and the leaping and twinkling lustre of the stars, and the harmony with which the irradiations of luminous points is spread over the whole visible hemisphere. The effect of beauty is produced in the simplest manner, by the contrast of light and of darkness. One vast-spreading, profound; the other, concentrated, numerous, life-like. Our intellectual appreciation falls far short of the grandeur of the visible heavens; as a system they elude our grasp; of their beauty, the human voice has discoursed since poetry first had birth.

From the regions which are almost inaccessible to man, we may descend to the planet on which his abode is fixed, and still find the same veil of beauty drawn over the landscape. The masses of land and sea, of hill and plain, of wood and valley, of cornfield and pasture, the links of a winding river, the reaches of an inland lake,—all impress the eye with the sense of beauty and of delight, in a mode similar to that which we have described. Masses of colour, depths of light and shade, form blending into form in one harmonious whole,—such is the beauty of the natural landscape. The works of man are instantly recognised as intrusive; noble, it may be, in themselves, and adding a certain human interest to the aspect of nature, but marked by the absence of that natural and inseparable beauty with which nature is clothed. The spiry village church catches the eye in a moment. It is not to be mistaken for the spire of the larch. It is the outcome of a mind which, it may be, loved and sought to produce what was beautiful, not of one that could speak in no other language.

If we descend from a subject so wide and general as landscape to the individual forms of organic nature, we shall find the same law to be illustrated. Every natural form has beauty, and beauty peculiarly appropriate to itself. In these special instances, moreover, it is easier to grasp the law of ornamentation. Beauty of surface may exist, as we know it does, for its own sake; but there may also be reasons why that beauty should be expressed in one mode, and not in another. There is something special which determines the mode, and while in ignorance of the laws of this subject, we shall prove but poor bunglers if we attempt artificial ornamentation.

Let us take the example of a tree. We will not insist on the more splendid specimens of colour, as the tulip tree or the catalpa; or on the most elaborate example of constantly repeated detail, as in an oak, rich with acorns. Let us look at a lime, or a plane. From landscape distance we observe a defined and rounded form, broken into large wavy masses of light and shade, which relieve the full green of the foliage. It is within our power to examine how these imposing masses are composed. We find, in the first instance, uniformity of plan, harmonious reiteration of given curves, and innumerable repetitions of details, all of which are one in design, but no two of which are so exactly similar as to lose a sort of individuality. One leaf, out of all the thousands, is never the exact counterpart of another, if regarded with minute care. The general outline of the tree—we speak of an uninjured fine-trained tree—is indicated by the form of the leaf. The proportion of stem to foliage, the angles and curves of the boughs, the profile that cuts on the horizon, are sketched in the stalk, and nervures, and serrated or plain edges of the leaf, which may be thus regarded as a sketch of the tree. The same angles, the same curves, the same proportions, re-appear throughout the whole minutely compound structure. Such is the living detail of the foliage, which, when regarded only as a feature in landscape, presents to the eye masses of modulated shade. We can trace, in the tree, not only how the ornamental aspect is produced, but, to a certain extent, we can understand why it is so produced. We find unity of design, which never sinks into uniformity of execution.

If we were to attempt the erection of a *fac-simile* tree by human art, what would be the result? By faithful and painful copying of nature we might form trunk and main branches. With more stiffness and less verisimilitude, we should descend to smaller boughs and twigs. We should cast, or stamp, tens of thousands of leaves, of perhaps two or three different sizes, hang them on the twigs, and produce a barber's block. The imitation would be at once distinguishable, and very painfully distinguished, from the reality. The subtle play afforded by the minute differences of actual living growth would be missing, and lamentable failure would be the result.

We may take a yet more striking instance of the ornamental work of nature if we go to the feathered classes. No object is more beautiful than a bird. While the beauty of structure is there,—with the scientific proportion of means to end, and the flowing lines of graceful outline,—we have a separate sense of pleasure awakened by the colours of the plumage. Of these we can only say that, whatever be their origin, their effect is that of ornament of the most perfect and harmonious description. We find the ornamentation designed in every tone and key of colour,—strong sharp contrast, of black and white, or black and red, pale half tints, or lustrous rainbow hues, that bathes every feather in glory. In regarding the details of the plumage, we find the same law to prevail as that which regulates those of the foliage of the tree. The ruling forms are simple. The details of one feather are the same, in design, as those of another. Yet one will expand into the strong plumes of the wing, another curve and droop in a tail which certainly is not simply mechanical, another crown the crest with a diadem of gems. Slight modifications, in every instance, all ruled by the same law, and resulting in perfect beauty of decoration. Over such delicacy of detail the appropriate colouring is thrown like a transparent veil. The trogon, with his plumage of green chenille, or the Argus Pheasant, or even our own peacock, with his studded train. What a lesson does such a creature give to the man who thinks ornamentation is an art, special in itself, and to be applied at will or at whim!

When, in artificial works, we attain a natural multiplicity of detail arising from the nature and legitimate use of the material, we have a natural ornamentation. Thus a wall, built of shapely and well-dressed stones, is far from an unornamental object. It may be enriched by sculpture or by mouldings, pierced with lights, strengthened by buttresses, treated in any way demanded by pure architectural requirements, and it will still possess, if the work be of a high class, a certain beauty of its own. But when we leave the province of construction, and come to that of making money,—when we seek to save instead of to build,—it is not marvellous that ill-burnt and ill-shaped bricks and roughly-spread mortar produce something in which the eye can take no pleasure. Then we cover it with stucco. Then, if it be an internal wall, we may hand it over to the decorator.

What can this artist do? He has to render a blank space sightly to the eye. From all the aid and guidance afforded by the repetition of structural detail he is debarred. He can do nothing but attempt some design which, call it what we like, is really more or less pictorial. In this he is limited by his field of display. In the nobler forms of architecture there will often be so much of structural law apparent as to indicate very clearly the proper course of decoration. But if you have a plain wall, which you are not to drape with curtains or to hang with pictures, what can you do to ornament it but introduce some modulations of colour or of light and shade for which there is no reason or necessity in the structure, and which must thus be purely arbitrary and artificial?

Now, when we find that the greatest artists—not of all time, but of all who have left us any clear record of their pictorial skill—have approached this question in a manner suitable to their genius, and that in the very effort at mural pictorial decoration Painting has produced her *chefs d'œuvre*—no easel-work attaining the grandeur of fresco—and that we have thus a characteristic architectural style, of which the date, the object, and the authors are all known,—we cannot doubt that we are in presence of a very high form of art, and it gives us no confidence in any theory as to the exercise of ornamentation as a distinct art in this country to find those who would so regard it speak in terms of extreme disrespect of the *stanze* of the Vatican, and of the magnificent pictorial decorations of the great Italian painters.

To every style its own. Its mouldings and tracery and diapers to the Gothic; its frescoes to the Cinque Cento. It is well to have, if we can attain it, a style of our own. But it is only by a faithful and impartial study of the actual work of the past that we are likely to attain excellence in this respect. It might be better to produce, if we could, a true English style, or a true nineteenth-century style, than to ape one of the thirteenth or of the sixteenth centuries. We have hopes of success in this respect, chiefly founded on the progress of our ceramic designs and workmanship. But, while we are content to borrow the architecture of past, and more earnest ages,—to build churches in Early English, or museums in Cinque Cento,—let us at least not commit the folly of imperfect and bastard imitation. If we can only imitate, let us imitate consistently. Do not let us attach to the structure of one country or age the decoration appropriate to another; or strive to invent, in a search after symbolism, that which has neither its origin in reason nor its pattern in either heaven or earth.

We think, then, that any attempt to construct a special art of ornamentation, still more to speak of decoration as a high art in itself, is a step in the wrong direction. Appropriate ornament is included in good design, the nature of the material and the object of the article furnishing the motive of the decoration. The goldsmith, the potter, the cabinet-maker, should each be trained to familiarity with the ornamental, no less than with the purely structural, part of his own craft; but this is far from being general ornamental art. In adorning textile fabrics, the object of the web must be regarded as well as its texture. The graceful art of the East, familiar with a harmonious distribution of colours, that mocks the skill of inhabitants of less brilliant skies, furnishes us with abundant examples of all that is most lovely in textile ornament. In Oriental patterns, moreover, as in hand-made lace, is always to be found that irregular symmetry that bespeaks the labour of man, not the product of a machine, and that thus approaches nearer to the great lesson of natural ornament. Where the greatest scope exists for arbitrary ornament is in architectural decoration. Here the nobler forms of structure are associated, in the minds of men of culture, with special modes of ornament. Either pictorial designs, as in the art of the Catholic countries of the South, or modified geometric or arabesque forms, as in that of the Mohammedan countries, where the introduction of figure-drawing is forbidden by religion, are the chief forms of mural ornament, if we exclude the consideration of tapestry and hangings. Into the æsthetics of paper-hanging we will not now descend, merely remarking that the absolute mechanical repetition of even the most costly and well-designed wall-papers destroys the charm they might otherwise exert. A hand-painted design, even if comparatively poorly done, has more in it to please the eye than the work of the printer, however rich and elaborate. In the complex form of Oriental mural ornament, as in those of the hand-wrought shawls, inimitable by our looms, it is rather the distribution of colour than the delineation of form that attracts the eye. So, we believe, it must be in all good geometric decoration. We may refer to the dentilated work of Indian windows, and of Moorish roofs, as an instance of the mode in which art copies, not the forms, but the procedures of nature. In the exquisite pierced marble windows, with the outlines of which photographs from India have made us familiar, there exists a distinct structural motive. Free passage of air without direct draught, and translucency without transparency, were required. The labour of years has produced these requisites from the marble, by a constant repetition of detail, equal to that of the vegetable kingdom. All this may, and should be, studied, but studied in its appropriate connexion. Let it be remembered that some artists,—we suppose, all the most eminent,—actually see their work before they put it on paper. With closed or with open eyes, in the dark or against a blank wall, the actual design stands out against the retina, as if drawn in the air. Are such inspirations of art left naked and bare, waiting for added decoration? On the contrary, they rise on the mind's eye glowing in harmonious hues. That school of design will best promote the cause of art that most fully stimulates the imaginative power of the artist, whatever be his special walk.

## REPORT OF THE ROYAL SANITARY COMMISSION.

### SEWERAGE.

THE evidence taken before the Commission having been published some time ago, the commissioners now present their report. The history of the sanitary laws of the country is very interesting, as classified and arranged in the report; but we will pass over it to consider practical topics.

Local self-government is recognised as being of the essence of our national vigour, and local administration, under central superintendence, as the distinguishing feature of our government. The theory is that all, that can, should be done by local authority, so far as concerns individual districts, and that whatever concerns the whole nation must be dealt with nationally. In this spirit the Commissioners draw up their report.

It is useful sometimes to read backwards, and we will first quote the concluding observations; they seem to us to be words of wisdom, and are these:—

"We cannot conclude this part of our report without giving expression to our profound conviction that no code of laws, however complete in theory, upon a matter of such importance and complexity as the health of the community, can be expected to attain its object, unless men of superior education and intelligence, throughout the country, feel it their duty to come forward and take part in its working.

The system of self-government, of which the English nation is so justly proud, can hardly be applied with success to any subject, unless the governing bodies comprise a fair proportion of enlightened and well-informed minds; and if this be true as a general proposition, it is especially true in regard to matters affecting public health. This is not only shown by the evidence which we have taken, but is manifest from the nature of the case. For in the first place there is at present among the great body of the people very insufficient information on such questions. A more vigorous and intelligent public opinion on sanitary matters has yet to be created in many places, and until it is created the action of the authorities will be more or less hesitating and inconsistent. In the next place, many sanitary questions of vital importance are from their very nature incapable of being completely provided for by any amount of legal enactment, however minute and explicit. So large a discretion must of necessity be left to local authorities as to details, that in practice much will always depend on the energy and wisdom of those who compose such authorities. Moreover, there are limits to the power of any central authority to remedy the evils produced by local inefficiency. It may control, stimulate, and in some cases supplement the efforts of local bodies, but it cannot be a substitute for them.

It seems, therefore, peculiarly incumbent on those who have leisure to take their share in administering these laws. In this work not only will prejudices have to be overcome and inactivity quickened to exertion, but a sound judgment must be exercised as to the extent to which, and the limits within which, considerations of public welfare ought to interfere with the absolute rights of private owners of property, and even with the personal liberty of individuals. It is work, therefore, which cannot be performed without effort; but it is hoped that it will be zealously undertaken, when the nation becomes fully alive to the importance of the subject.

We trust, therefore, that those who possess the necessary qualifications for the work may be induced to aid in working out within their own localities measures so largely affecting public interests. Such labours may be crowned with little honour, and will be rewarded with no emolument; but if they should hold out small temptation to ambition, there are higher motives for them in public spirit and a sense of duty. No institutions of voluntary benevolence are more popular or more efficiently administered than hospitals. Not only money, but time and a large amount of personal superintendence, is given by their supporters; and it may fairly be asked whether to prevent disease is not as worthy an object as to remove it, and whether it can be better prevented than by giving full effect to the laws enacted for that purpose."

In the suggestions for a new statute, the Commissioners are of opinion that it should save and continue all local boards of health districts and all local boards acting therein, whether town councils, commissioners, or local boards appointed under the Public Health Acts and the Local Government Acts, with slight amendments of their constitutions; also all special drainage districts, providing for the future government by, and carrying over their property and liability to, elective boards, to be appointed under the new statute; and, as by the repeal of the Acts under which they derive their powers nuisance authorities and diseases prevention authorities, as such, and sewer authorities (vestries), and united sewer authorities, as such, will cease, provision is to be made by the new statute for carrying over the works and property, contracts and liabilities, of all such discontinued authorities to the authorities to be constituted under the new statute. It is next proposed to repeal the Towns Improvement Clauses Act, 1847.

In country districts the Boards of Guardians are to be the sanitary authority, and are to be elected for three years, instead of one as at present, in order to assimilate their position to that of members of boards of health and town councils.

Under the new law the sanitary authority is to have the name of "Local Health Authority," and the term "Central Authority" would mean that branch of the executive government having the supervision and control of the local health authorities.

The central authority is to consist of one minister for the administration of the sanitary law and the poor law, whose title should clearly signify that he has charge of both departments. He is to have power to unite or combine districts, to divide them, to make additions to or separations from them; or to dissolve and re-adjust them.

According to the present law, the word "sewer" has a general significance assigned to it, which the Commissioners think it might be well to maintain, and "drain" has the arbitrary meaning assigned to it as "the drain of one building." In the new statute, the Commissioners say, it will be necessary to speak of works for receiving and conducting foul fluids, and of those for conducting unpolluted water. In the new statute the word "drain" is proposed to be interpreted to mean "any channel or conduit for receiving and drawing off unpolluted water" (unpolluted water being any water not fouled by sewage, domestic use, &c., and includes surface drainage); whilst "sewer," whether main sewer, connecting sewer, or house sewer, is to be any channel or conduit for sewage.

The powers of local authorities seem to the Commissioners to be generally ample on the subject of sewerage under the existing statutes; but many defects appear to obstruct the active exercise of these powers, and they say that on some points they require supplement. We had been looking forward to this report for suggestions on a defect in the existing statutes which is of vast importance, viz., the defect that they do not provide for the proper ventilation of house-drains by the owners of the houses; and we must say that in this respect we are disappointed with the report.

Notwithstanding the ability with which the report has been drawn up, in all matters legal and medical, there is an apparent want of appreciation of the importance of the proper construction of the works upon which the report treats. This most important subject of the ventilation of house-drains is noticed but twice in the whole report, and that in the most casual and indifferent manner. At page 44 it is said, "It has been remarked in the course of our evidence that sewers themselves convey disease if imperfectly ventilated;" and, notwithstanding that evidence, which was given by Dr. Farr and Dr. Trench, the only other notice the Commissioners take of the subject is to say (page 97), "We recommend that the effect of section 33 of the Towns Improvement Clauses Act, 1847, as to trapping and ventilating sewers should be introduced into the new statute." But what is this clause? It is stated at page 166 of the report, in an analysis of the Act, to be that, "All sewers and drains within the limits of the special Act, whether public or private, shall be provided by the Commissioners or other persons to whom they severally belong with proper traps or other coverings or means of ventilation so as to prevent stench." But that is inoperative without a bye-law to enforce a particular method of construction, because, in practice, foul air is more or less a stench to different people according to their sense of smell, and the master of a household may be allowing most poisonous gases to enter his house without knowing it; or, even if he knows it in a small degree, without admitting that it is injurious; and when we consider that, besides his own house, he may be the owner of many houses occupied by other people, and that it is he who will have to pay for any remedy, we can easily see that in either case he will be unwilling to do anything to prevent what will probably appear to him to be unnecessary. Indeed, this is exactly one of those cases that make further legislation at all necessary. It is necessary for those who are able to ascertain which are the best means of preventing admitted evils, and to enforce them. Ventilation of the drains of some sort may be admitted by everybody to be necessary; but when any method is suggested that is not of the merest paltry and makeshift character, opposition is set up by those who have to pay for it.

And the owners of house-property—especially of the smaller class—are frequently those, with their friends, who have to make or not make the byelaws; and experience shows that they are very reluctant to move in the matter. Indeed, the Commissioners seem to have been aware of this, from the following remark, page 31:—"Great is the *vis inertiæ* to be overcome; the repugnance to self-taxation; the practical distrust of science; and the number of persons interested in offending against sanitary laws, even amongst those who must constitute chiefly the local authorities to enforce them."

The Commissioners, however, seem themselves to recognise the preference of direct legislation to byelaws in such cases as this, for they say, page 53,—"We conceive the principle to be followed is this: that matters of general applicability should be included in general legislation, but that matters which require to be adapted to varying times and localities, or are too minute for general legislation, are the fitting subjects for byelaws." Well, necessity of the ventilation of drains surely does not vary either in time or place.

The basis upon which a system of ventilation of drains must be effected is the consideration that sewage consists of two fluids, the one liquid (the sewage proper), and the other gaseous, the foul air liberated by the decomposition of the sewage; and as these two kinds of fluid travel in opposite directions,—the one downwards, by gravity, and the other upwards, by reason of its having less specific gravity than the atmosphere (at least, some of the component gases have, and those most injurious to health), it follows that, to construct a channel merely for the one part, without completing the work by providing an exit for the other, is to make an imperfect work; for, as the formation of gases cannot be prevented in the sewers and drains, they will accumulate in the higher parts of the drains (and those are in and close about the houses) until their elastic force drives them through the traps and through the soil-pipes of the water-closets into the houses, unless a ventilating-pipe be so connected with the drain as to carry off these injurious gases. And how shall that be done?

It is the business of the Commission to ascertain, by the best evidence they can procure, which is the best method of doing any specific thing that it is admitted ought to be done, such as ventilating sewers and house-drains, but as we have more than once stated in the *Builder* a method that has succeeded, and which has every sound argument in its favour to recommend it, we will here repeat it. But it has been over and over again acknowledged by the most competent authorities to be effectual, and it is only because the Commission have overlooked the importance of the subject and neglected to take evidence upon it, that they have not been put in possession of such facts as would have led them to introduce an effectual method into their report. The method of ventilation to which we refer is to carry up at the head of every house-drain a pipe, of 3 in. or 4 in. diameter, to the top of and a few feet above the highest part of the roof of the house, and, where there is a water-closet, to connect the soil-pipe with it by a branch pipe sloping upwards at an acute angle, which branch pipe is to be derived from the soil-pipe at a point immediately below the "trap" of the basin. The eruption of the confined gases will not then tend to force themselves through the traps, but will freely ascend the channel provided for them, and when they make their exit from the mouth of the pipe above the roof they become sufficiently diluted with atmospheric air to be harmless to dwellers below, for they have the tendency to still further ascend; until, indeed, they become practically annihilated. That gases in drains do really attain to great expansive force when pent up, is proved by the repeated observations of many persons that they frequently bubble up through the water contained in the "trap," and which is placed there to prevent their escape; how much easier, then, is their escape when this small film of water is removed either by evaporation or by accidental cause.

## THE '71 EXHIBITION AND THE ROYAL ACADEMY.

IT is curious to note the difficulty that the Commissioners of the '71 Exhibition appear to find in getting together a sufficient stock of *architectural* drawings, to represent the "architecture" of the period, and the status of the British architect. Why is this? How is it that the architects of the day are so slow to send in, for the world's show and view, specimens of their artistic skill? Never was there a better chance of making oneself world-famous; surely there must be some great and vital reason for such a state of things. Perhaps

several reasons combine. It is greatly to be feared that in the intense anxiety to *educate*, and bring forward the young architectural practitioner, the old and thoroughly practised man of experience and business has been almost forgotten. He it is who can alone refer the world to his published and existing works, to his buildings, and to that real and practical exhibition of architecture which alone, after all, is of value. This subject is, therefore, of the last importance at the present moment, for while the practising architect of experience and advanced knowledge can point to his works, the young practitioner can but "make a drawing" of some fanciful building, and send it in for exhibition, trusting to fortune for its acceptance.

But there is yet another view of this matter which calls for notice. It is that of the idea which some seem to have got into their heads, that no architect can be fairly judged except through the medium of an actual building, and that no mere *drawing* is any test of architectural skill. An architect, it is said, cannot be judged by his drawings, but only by the finished and built-up works which he may have executed; and it is quite certain that no dictum which could possibly be laid down could be more to the purpose or truer. We do not pretend to judge Sir Christopher Wren, or Inigo Jones, or Sir Charles Barry, by the few drawings which they may have left behind them, but by actual eyesight of their finished works, and of the buildings which they produced. If we want to know what Wren could do in the way of architecture, we doubtless look at St. Paul's and Bow Church; if we want to know what Inigo Jones could do, we look at the Whitehall Chapel and the Watergate, and the Covent-garden Church and Piazza; and if we want to know what Sir C. Barry did, we look at his Reform Club-house, and at the Travellers' Club-house and Bridgwater House, and the Houses of Parliament; and hardly at the drawings of those buildings, even if they were at hand to look at. Yet, may it be observed in passing, it would be not a little interesting to be able occasionally to get sight of some of the *bonâ fide* architectural drawings of these great architects, how much they would convey, and how they would show the methods of their work, and the processes by which the actual buildings were matured by their authors, and brought into visible existence. But with the student of architecture and the humble practitioner, of whom we more particularly speak, all this is totally changed. It has been forgotten to note the important fact that such architects have produced no buildings to which they can refer the world for evidence of their artistic power and architectural skill. It is to find an opportunity for such exercise of knowledge and skill in architecture that they are in search, and the *only* way in which it is possible for them in their circumstances to show any skill at all is to exhibit *drawings* or representations of proposed or contemplated buildings; and it must be necessarily to these drawings that such men must point and ask the public to go and look at. It is strange indeed that it should have been forgotten, all important as this fact is. A young architect who should have to wait for work till he could point out some conspicuous building brought into existence under his own direction, could, of course, never even commence architectural practice at all; it is in a drawing or *representation* only that he can at first evidence his talents, and indicate to the world what he is made of, and what it is he can do. There is no other possible way of going to work.

Again, still further away from the mark, it has been said, and it shows how thoroughly chaotic things-artistic are, we should find it impossible to persuade a body of artists to open a room specially suited not to a general, but to a strictly architectural public. What is such a privileged and well-to-do institution as the Royal Academy for, if not to prevent the necessity of any section of artists from doing such things for themselves? The Academy was instituted for the very and express purpose of helping *all* the fine arts, and of bringing them prominently before the public eye and mind, and calling public attention to them in a prominent way, and thus to induce the public to look at things which but for the Royal Academy they would never care to look at or give a moment's thought to. The public is not yet prepared to profitably patronise a purely "professional" and architectural exhibition, especially one of details and working drawings; but we contend that they will go a little out of their way to look at such, if in connexion with things which *all* are interested in, and which everybody will look at if placed before them, like pictures and oil paintings.

No institution at present existing has so wide a field of usefulness as the Royal Academy, if but conducted on the fair and even principles of *free trade* in art. Why should architecture be put aside, as it always is, in one narrow room, and killed, as it always is, by so many bright oil-paintings being mixed up with its plainness and dulness? No mere water-colour drawing can possibly compete with the brightness of oil, and certainly no mere detail or *line* drawing can hope to get notice by the side of a large picture fresh from the studio of a painter in oil colours. And here it is that we would venture to make a suggestion, which we cannot help thinking would be worth trial, and might be doubly helpful; it is that the *sculpture* and the *architecture* should be exhibited *together* in one or two rooms, while the paintings should remain *per se*. By this arrangement a very considerable gain would be likely to ensue; for the architecture would certainly gain by the close proximity of the sculptured forms to which it is always so nearly allied, and the sculpture might even gain by the closeness of the architecture to it. Both might find it a gain, and neither surely could lose. Of course, the architecture would be confined to the walls of the room or rooms, and the sculpture to the middle of it, or rather round it, leaving room for a passage; and, while we are about it, may it be suggested that the more modest the gilt frame round an architectural subject is, the better for it, and for the room, and for the sculpture. To our mind, this arrangement would be a great advance on the present system of doing things, and would be hailed as an improvement by both architects and sculptors.

There are many other things well worth a thought and a comment here, but they would lead us too far from the present subject. We would therefore note only one other matter often pointed at before in the *Builder*, viz., that it would be a good thing if architects,—that is, the older practising members, were to lend their drawings for the information and instruction of their younger brethren. One word as to the architectural "prospectus" just issued by the Academy, and put forward, as it would seem, as a sort of novelty. A Royal Academy teacher, there can be no manner of doubt, has as good a chance as any one ever had; the open road is before him, but if he is to jog along at the pace and in the style in which his predecessors have moved, woe to those who are destined to drag along with him. Nothing could exceed our surprise when we saw the "prospectus" for the first time, for we did expect that some little bit of novelty would be forthcoming in the way of architectural teaching, after so much of promising and preliminaries. But this prospectus is the good old affair on the well-known blue paper over again, almost word for word. To do the Royal Academy justice, it has always promised as much; there has been no time in which it has not offered to students of architecture the privilege of copying from the round; there was always a plaster cast on view to be copied from. There was always a huge file of folios to refer to, full of every kind of difficult information in pretty nearly all the languages of Europe. Never has archæology been absent from the minds of the Academicians, whether adopted by French professors or no, and no human being can ever accuse the Academy of being blind to the merits of "Academical knowledge of precedent," as the best foundation for the acquirement of a knowledge of architectural design, or any other phase of design. Whether the proposals will be better carried out than of old remains to be seen. Some things at the Academy are worse, rather than better, for the students' term of study is now limited to *seven* years,—in old times it was ten; and without any conceivable reason has the change been made.

It may be here, perhaps, allowed us to make one suggestion which, if carried out by the Exhibition Commissioners, might afterwards be not a little useful as a precedent, and as a something to go by; it is, that a portion of a room or rooms should be accorded to those who carry out in detail, and, in fact, do, the real work in the production of painted glass and decoration. In old days, of course, if you had asked to see the draughtsman of a painted window, you would have been introduced to the man who undertook to fill in the stone mullions of a window with coloured glass, and there would have been no mystery about it. But in these enlightened and advanced times things are changed, the "man of business" is everything; the real, *bonâ fide* artist, whether student or workman, is almost nothing; and, indeed, never appears at all; or, if he does, it is when massed with others of a like trade. *Individually*, the working artist has for a long time been nothing, and is nowhere. Why not, then, in this exhibition, wherein there is at least plenty of room and wall space, encourage him to exhibit *his* bit of work, whatever it may be. Suppose, for example, the figure in a window. If it be possible to conceive a figure all done by one man, or boy, or student, let the Royal Commissioners encourage such to *send* in specimens of their own *bonâ fide* work,—on the glass itself if it be possible, but if not, the cartoon for it; and let us see how and by what process a stained glass window is conjured into actual existence, and let us at least know the name of the man or boy who really must have had, somehow or other, some sort of conception in him of David, or Solomon, or Peter, or Paul, or saint, or angel! Let us see the *artist*, and not the *man of business*.

## MEDALS AND PRIZES OF THE INSTITUTE OF ARCHITECTS.

AT the special meeting of members, on the 6th inst., after formally awarding the Royal Gold Medal to Mr. James Fergusson, it was resolved,—

That the Soane Medallion (with the sum of 50*l.*, under the usual conditions) be awarded to the author of the Design for Royal Stables, &c., distinguished by the device of a Horse-shoe (W. Galsworthy Davie).

That in the same competition, the drawings bearing the motto, "*Par ballon monté*," be honourably mentioned (Arthur Hill, B.E., Assoc.).

That the Institute Silver Medal, with 5*l.* 5*s.*, be awarded to the author of the Drawings illustrative of St. George's Chapel, Windsor, distinguished by the word "Student" within a triangle (S. Wyborn).

That the Student's Prize in Books be awarded to the author of the Design for a Drinking Fountain, bearing the device of a Cross within a circle (John Sulman, Student).

That the Institute Silver Medal be awarded to the author of the Essay on the Decoration of a Suite of Apartments in a first-class Town Mansion, bearing the device of two leaves within a circle (Alfred Jowers, Associate).

## THE OFFICERS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the Special General Meeting of members only, held on the 6th inst., the President (Mr. Wyatt) having referred to some remarks made in his opening address for the present session, expressed his opinion that it would facilitate the transaction of business at the Institute if the "*Assistant* Secretary" were to be appointed "Secretary," and made directly responsible to the council instead of to the hon. secretaries. He explained that in the event of such an arrangement being sanctioned, one hon. secretary alone would remain in office, inasmuch as under the charter there could be but two "secretaries" to the Institute; and he proposed that the hon. secretary should then be charged with the duties of foreign correspondence.

After some discussion on this subject, it was moved by Mr. F. Marrable, and seconded by Mr. C. H. Cooke:—

"That there be two secretaries of the Institute elected annually:—one of whom shall be paid such salary as the Council may from time to time determine, and that the word 'Assistant' be omitted from Section VIII. of the bye-laws."

In order to insure full discussion on this proposal, the meeting was adjourned until Monday next, the 13th of March.

In consequence of this discussion, Professor Donaldson has addressed the following letter to the President:—

"8*th March*, 1871.

MR. PRESIDENT,—The proposition which you have formally submitted to the Royal Institute of British Architects, that the present Assistant paid Secretary should be raised to the office of chief (not honorary) secretary and member of the Council, and should have the sole control and management, under the Council, of the affairs of the Institute, so that, in effect also, the honorary secretary would be subordinate to him, is an arrangement which I think will be very prejudicial to the official department of the Institute, and consequently to its best interests.

This leaves no other step for me to take, or any other member of the profession who has any respect for himself

as honorary secretary, than to decline to be put in such humiliating subordination.

I therefore place my resignation unreservedly in your hands, and I must request that my name be withdrawn from the list of Fellows.

I desire not for one moment to stand between the wishes of the members and what *they* may consider best for the interests of the body. I beg them to consider this as only one more last instance, painful as it must be to me, of the affection and devotion I feel for an institution in whose formation I was an humble instrument, and to whose success I have devoted the most earnest services and unswerving duty during six-and-thirty years. I have done so without any other object or desire of reward than the consciousness of having served the profession.

Believe me, Mr. President,
Very faithfully yours,
THOS. L. DONALDSON."

As the discussion which led to this letter took place at a meeting not open to the public, we should have considered ourselves bound to avoid reference to it, had we not received, at the last moment, official particulars, as well as letters from at least half a dozen quarters. We have but time for a very few words. On the question of a dominant paid secretary, in lieu of the honorary secretaries, hitherto, and, on the whole, with good effect, ruling under the council, there are two opinions, and much may be said on both sides; but as concerns the necessity for avoiding the faintest appearance of a slight to Professor Donaldson, the founder and for long years the mainstay of the Institute, there can be only one feeling throughout the association. It would be a discredit and a damage if he were allowed to withdraw himself in anger from the body, and we earnestly trust that an arrangement will be come to on Monday to prevent, at any cost, such a disastrous occurrence.

## THE WORLD IN THE CEILING.

THE rounded house in the Strand, at the corner of the turning leading to Trafalgar-square, has its top room crowned with a small dome, and this, Mr. Chas. Bowles, one of the firm of American bankers occupying the house, has caused to be painted with a map of the northern half of the world. It is exceedingly well and clearly done, and full of suggestion to those who view it with the mind. Little golden spots mark out the cities and towns; the railways, the telegraphs through land and sea are plainly seen, and the degrees of latitude and longitude are shown. The causes which have tended to raise towns and countries to importance, the enormous extent of the Russian empire, the importance of the Suez Canal, the extraordinary railroad recently completed across America, are a few amongst the points that are at once conveyed to the mind of the observer. The value of a silent teacher like this in a great school would be immense, and the idea might usefully be carried out further. Why should not the walls of educational establishments be decorated, as we have before now suggested, with instructive diagrams, enlarged maps of countries, statements of leading facts in history, outlines of sciences, historical dates,—in fact, mind excitants of all sorts? Anyhow, Mr. Bowles has turned his ceiling into what Byron calls the skull, a "dome of thought."

## THE WOLF ROCK LIGHTHOUSE.

MR. DOUGLAS, the engineer of the Trinity House, recently gave an account of the erection of the latest of our lighthouses, constructed by the Corporation of the Trinity House on the Wolf,—a dangerous, rugged porphyry rock, about nine miles south-west of the Land's End, exposed to the full force of the Atlantic, and overflowed by the sea at high water. The *Cornish Telegraph* gives a report of the lecture, from which we quote.

Since the year 1795, several very strong iron beacons had been swept away by the violence of the sea, and the corporation determined to erect a lighthouse. In 1860, the design was furnished by their engineer, the late Mr. James Walker, and its execution was first undertaken by the speaker and his brother William, who succeeded him as resident engineer in October, 1862. On the 1st of July, 1861, Mr. Douglas commenced his first survey; and, on returning to the vessel that same day, was hauled on board through the surf by a line fastened round his waist—a mode of embarking frequently afterwards resorted to. The cutting-out the foundation began on the 17th of March, 1862. Only twenty-two landings and eighty-three hours' work could be done during that year.

In succeeding years more frequent landings, and increased working-time, were obtained; and, at length, on the 19th of July, 1869, the last stone of the tower was laid by Sir Frederick Arrow, the deputy-master of the Trinity.

The exact height of the tower is 116 ft. 4½ in. Its diameter, at the base, is 41 ft. 8 in. It is built of granite, each face stone being dovetailed horizontally and vertically and secured by strong bolts of yellow metal. The stonework was prepared at Penzance, and conveyed to the rock in barges by means of a steamer; and, in the latter portion of the time, the blocks were lifted into their position by a steam winch—probably the first employment of steam power upon a tidal rock. A fog-bell weighing 5 cwt., is fixed on the lantern gallery.

The lantern itself was constructed by Messrs. Hodge, of Millwall, and in its construction Mr. Douglas was very much assisted by the advice and assistance of Professor Faraday, the scientific adviser of the Trinity House, and his successor, Professor Tyndall. The optical apparatus was designed by Mr. James T. Chance, and the plate glazing was supplied by the Messrs. Chance. The light, exhibiting alternate flashes of red and white at half minute intervals, is of a purely distinctive character, being a dioptric light of the first order; the arrangement being adopted after experimental observations by Professor Tyndall and Mr. James Douglas. The illuminating power of each beam is estimated at 31,500 English candles, or units, of light.

On the first day of the new year, 1870, the light was first exhibited.

The average number of persons employed in this work, at one time, was about seventy; and no instance of loss of life or limb occurred to those engaged. The total cost of the erection was 62,726*l*. The tower was erected in 809½ hours (only 101 working days of eight hours each). 266 landings were made in seven years. It contains seven rooms, adapted for living, sleeping, stores, and apparatus.

Since the completion of this lighthouse, no shipwreck has occurred on the shores of Mount's Bay, or in the vicinity of the much-dreaded Land's End.

## OPENING OF THE SOMERSET DOCK, MALTA.

ON the 16th of February the great naval dock just constructed at Malta was opened; the last stone being laid by the Bishop of Gibraltar, "under the directions of the Hon. Barbara Yelverton," a daughter of Admiral Yelverton, the Commander-in-Chief in the Mediterranean, who declared the dock to be opened. This is said to be the largest naval dock in the world. The following comparative dimensions show the greatly increased accommodation afforded to the navy by the Somerset Dock:—

| | Somerset Dock. | Old Dock. |
|---|---|---|
| Depth in entrance and on floor... | 34 ft. | 25 ft. |
| Width between copings | 104 | 83 |
| Length on floor | 430 | 301 |
| Width of entrance | 80 | 73 |

Thus there are 9 ft. additional depth of water, 22 ft. increased width, 120 ft. increased length, and 7 ft. greater width of entrance. In respect of cost, the Somerset Dock is compared favourably with the old dock. The cost of the latter was 60,000*l*., and it was afterwards lengthened at an additional cost of 90,000*l*. This gives a total of 150,000*l*., which is about the same as the Somerset Dock, excluding the extra work in clearing the rock overlying the site and the wharfs adjoining thereto, which did not occur at the old dock.

The cost of the Somerset Dock is swelled considerably in consequence of the great expense incurred in making the entrance to it, which is equal to a dock in itself of 270 ft. in length, 83 ft. wide, and 34 ft. deep. No such additional work was necessary in forming the old dock, as it was merely an extension of the creek.

The dock is situated under St. Michael's Bastion, in convenient proximity to the fleet, on the one hand, and the Government docks and workshops on the other. This location of the dock was selected by its projector, Lieut.-Colonel Clarke, R.E., C.B., Director of Admiralty Works.

Before the works were commenced, it was proposed that they should be made by contract, by English contractors; but, by the advice of Mr. Charles Andrews, the civil engineer, it was decided to use only the Maltese contractors for such works as they were accustomed to; the remainder (and most difficult operations) being done by Government men, employed by the civil engineer, whose duties and responsibilities were, of necessity, much increased by the arrangement.

A Commandership of St. Michael and St. George, or a Companionship of the Bath, has been recommended by the Commander-in-Chief to be conferred upon the engineer of the dock, Mr. Andrews.

## OPENING OF BRITISH SCHOOLS, CHESTER.

THE buildings intended as British Schools in Windmill-lane, Chester, have been opened by the Marquis of Westminster. The committee purchased a piece of land adjoining the old site, whereon to build the new premises; since, though the price (320*l*.) was comparatively high, proximity to Newtown was of importance. The designs of Mr. Lockwood, of Chester, architect, were approved, and a contract being entered into with Mr. Ray, of Nantwich, the work was begun towards the close of last summer. The builder's contract was 1,160*l*.; but, adding the cost of the land and other expenses, the total outlay will be about 1,700*l*. Accommodation is afforded for some 500 children,—that is to say, 250 boys, 150 girls, and 100 infants; the latter department being new.

The building is Gothic in style, the material being brick, with ornamental dressing. It consists of two stories, each 14 ft. in height; the entire height from the ground line to the ridge being 38 ft. The boys' schoolroom is on the upper floor: the girls' and the infants' on the lower. The former is 78 ft. long by 18 ft. wide, exclusive of a lateral wing projecting over the infant school, which forms a material addition; the whole affording accommodation for the number of children named. The girls' schoolroom on the ground floor is 59 ft. by 18 ft., a wing at the northern end providing a convenient class-room here, as with the boys' in the story above. The walls are lined internally with glazed tiles to a height of 5 ft. throughout the building, making impossible either the rubbing off of whitewash or the spoiling of woodwork. The fabric stands upon an area of about a quarter of an acre, so that ample playgrounds are secured for the children.

## ROAD STEAMERS.

NOTWITHSTANDING the stupid restrictions on the running of steam carriages on roads, such as walking with a red flag in front of them, they are making progress. The recent severe frosts have put these steamers, which have lately begun to rise in public opinion, to a severe test. Happily, it is said, they have gone through it successfully. Mr. White, of Ketock's Mill, near Aberdeen, worked his road-steamer regularly throughout the frost. It runs between the mills and the town, a distance of three miles, part of which has a rising gradient of 1 in 10. Up this steep incline the road-steamer bravely drew a load of seven tons, though the road was covered with solid ice. The wheels of these steamers are covered with india-rubber tires, and as india-rubber does not slip on ice, the steel guards are removed, and the engines do not slip. The question is a very important one as regards the practical value of the steamers, as they can now be used for regular traffic in very cold countries, such as Russia and Canada, where sledging is commonly employed. The india-rubber tires run over almost any kind of surface, and can consequently, it is believed, be used on the dry hot sands of India as well as on frozen roads.

Thompson's road-steamers are about to be brought into use in India. It is intended to run them between two stations in the Punjab, viz., Rawul Pinde and Jhelum, 68½ miles apart. The boiler is on the vertical principle, by which means a nearly uniform water level is maintained when either ascents or descents are being made, a thing in itself of great importance. The india-rubber tires are about 4½ in. thick, and flatten with the weight of the engine, thus giving great adhesion and elasticity on bad roads. The engine runs on three wheels only, and in this way a small wheel base is obtained and great facility given for steerage. This train will, on ordinary occasions, consist of one, and on extraordinary occasions of two, omnibuses, and will run the distance in seven hours, inclusive of all stoppages. One omnibus will carry 20 first, 20 second, and 20 third class passengers, with 50 cwt. of mails and luggage, which will be sufficient for every-day traffic. The steamers are well known in the streets of Edinburgh.

## WHARFEDALE WORKHOUSE COMPETITION.

ON the 3rd inst. a special meeting of the guardians of the Wharfedale Poor Law Union was held at Otley, for the purpose of selecting a design for the new workhouse, out of twenty which had been furnished. The Chairman (Mr. Thomas Denison) presided. The report of the Building Committee was read, in which the plans bearing the mottoes "Alpha," in black, and "Economy," in blue, were recommended for the first and second premiums respectively. It was moved and seconded that the report should be adopted. A good deal of discussion ensued, and various amendments were submitted. Ultimately, however, the original motion was carried. The mottoes of the various designs were then opened, and it was found that the designs bearing the motto "Alpha," in black, had been sent in by Messrs. C. S. & A. J. Nelson, of Leeds, to whom the first premium, of 50*l*., was awarded; Mr. C. E. Taylor, of the firm of Taylor & Garthwaite, of Bradford, the author of the designs bearing the motto "Economy," in blue, being entitled to the second premium, of 25*l*. The following is the list of competitors:—Mr. E. W. Stephens, London; Messrs. Hope & Jardine, Bradford; Mr. J. W. Morris, London; Messrs. Webbe & Wheeler, London; Mr. John F. Cobb, Newport; Mr. John Walker, London; Mr. R. K. Blessbrey, Middlesbrough; Messrs. Robinson & Marshall, Bradford; Mr. T. Ambler, Leeds; Mr. Alex. Stenning, London; Mr. W. Hill, Leeds; Mr. Jas. Fisher, Birkenhead; Mr. Chas. Fowler, Leeds; Mr. R. B. Dixon, Darlington; Mr. Thomas Clark, Bradford and Yeadon. Two of the designs, bearing the mottoes "Wharfe" and "Utility," had not the names of their authors attached to them.

## MUNICIPAL BUILDINGS COMPETITION, BIRMINGHAM.

WE learn that twenty-eight designs have been delivered, in competition for the Corporate Offices, proposed to be erected in Birmingham. Many of these are from architects in London. Amongst the Birmingham architects who have sent in designs are Messrs. Yeoville Thomason, Bateman & Corser, Naden, Holmes, Osborn, and Ward.

## THE SANITARY INQUIRY AT LIVERPOOL.

THE two commissioners appointed by Mr. Huxley, as president of the British Association, namely, Professor Parkes, F.R.S., and Dr. Sanderson, have gone to Liverpool on the subject of the inquiry. At a meeting with various officials, including the Mayor and Dr. Trench, at the invitation of the local Health Committee, Dr. Taylor, chairman of the committee, addressed the Commissioners, and Professor Parkes said that the points which had been brought before their notice would be fully inquired into. What they purposed doing in the first instance was to select the most unhealthy parts of the town and enter into a very minute investigation of all matters relating to it. Subsequently they would go into other portions of the town; so that they would commence in a practical way, and would afterwards seek for evidence, if it was thought desirable that such should be given.

Dr. Taylor perfectly acquiesced in the course indicated, and added that the commissioners would be glad to receive information from any member of the Council, from other public bodies, and from the public generally.

## COMPLETION OF STANDEDGE TUNNEL.

THE tunnel through the Standedge Hills, separating Marsden on the Yorkshire side from Diggle on the Lancashire side, has been completed and opened for regular traffic. Three tunnels pass through this range of hills at Standedge, one a canal tunnel and the other two for the purpose of railway travelling. The first-named tunnel was commenced in 1794, and completed in 1811. It cost 123,803*l*., and it is three miles and 171 yards long. During its progress there was serious loss of life in carrying out the undertaking. Mr. T. Nicholson, who made the Woodhead tunnel, was also the contractor for the first of the Standedge railway tunnels. It is longer than the Woodhead tunnel by about forty yards, being three miles and sixty yards long. Commenced in 1845, it was completed in 1848. It cost 171,003*l*.; the approaches, 30,605*l*., making a total cost of 201,608*l*., and the largest number of men employed on the undertaking was 1,953. Nine fatal accidents occurred in its construction. Messrs. Thos. Nelson & Sons, of Carlisle, were the contractors for the second or new railway tunnel. The work was commenced in April, 1868, and completed in October, 1870. Its exact length is 5,435 yards, or one yard less than the tunnel running parallel; but the actual length constructed by Messrs. Nelson is 5,297¾ yards, the difference arising from a short piece at each end having been made when the first railway was executed. The above length is lined with red bricks, faced with blue Staffordshire bricks; the height of the tunnel inside the brickwork is 20 ft., and the width 15 ft. The total quantity of brickwork built is 52,156 cubic yards, the total number of bricks used being 16,831,149, equal in weight to 68,000 tons. 6,271 tons of coal, 472 tons of coke, 2,421 tons of lime, 140 tons of cement, 1,744 casks of powder (equal to 174,400 lb.), 35,853 fuses (in coils 25 ft. each, equal to 170 miles), 8,745 dozen lb. of candles (equal to 104,940 lb.), 6,416 gallons of oil, and vast quantities of timber, were used in the construction of the new tunnel. The *débris* was conveyed away by means of tramways, which ran through passages under the old railway, and was tipped into boats on the canal. Of these tramways there were twenty-one, but only sixteen were used at one time. Twenty-five boats and four steamboats were constantly in use in "leading" off the *débris*. Only one life has been lost in the time the tunnel has occupied in making, though accidents of a less serious nature have been frequent. The whole work has cost over 120,000*l*., and has been pronounced satisfactory.

## LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.

BY MR. EDWARD M. BARRY, R.A.

MY first appearance here as a lecturer is to me a matter of anxiety and regret; anxiety from my conscious inability to do justice to the great topic of our art, and unfeigned regret for the reasons which have prevented you from hearing it treated, in his usual masterly style, by our Professor of Architecture. All will, I am sure, agree in expressing a sincere hope that, after a short abstention from his most pressing cares, we may have the pleasure of again welcoming Mr. Scott in this place, in restored health and vigour. I may, perhaps, before entering on the subject of my lecture, bespeak your indulgence for myself, suddenly called on to address you, without time or opportunity for special preparation. It is also one of the difficulties of the lecturer, himself an architect, to feel only too acutely the inferiority of his practice to the ideal on which it is his duty to insist. Moreover, an intrusion into a regular course is in itself a difficulty. Sincerely trusting that such intrusion is but temporary, I shall only ask your attention to-night to some general principles which affect our art, and indeed the art-knowledge of the country, and shall then briefly touch on some of those essential qualities in architecture which appear to merit the special consideration, as well of those who love as of those who practise it. If, in so doing, I may appear to travel somewhat beyond the region of architecture, pure and simple, it will be from a conviction akin to that of the physician who looks to the general health of an individual before dwelling on partial disorders. By taking this course, my lecture will inevitably assume an introductory character, but I trust I shall thereby avoid the risk of interference with any points of detail which the Professor might hereafter desire to treat in a more connected manner, or with a view to the development of any complete theory of art. I shall thus endeavour to leave the stage free for that resumption of his teaching at which we should all rejoice.

It is, indeed, very necessary that in the practice of our art, the main guiding principles should be well understood. Without a clear perception of them, there is ever, and perhaps especially now, a risk of drifting into an architectural chaos. I shall, therefore, ask you to-night to consider the present position of architecture, and the reasons of that position. The true principles, which have ruled the past, and on which progress must be based in the future, will then claim our attention. If art be long, and life short, this is pre-eminently the case with architecture. It is scarcely possible to fathom all its depths. It has always instruction for the most learned, a new joy for its skilled devotees, and at the same time pleasure and delight for those who can read as they run. There has never been a time in the world's history when architecture did not assert and prove its importance. To-day, it is true, there may be discouragements, but these, when examined, will be found to arise from special circumstances. Architecture has only to be true to herself in order to hold her own; but to do so she must remember her dignity as a living art, and must not be content with the trappings and shibboleths of the dead. Other branches of art may be finite, but not so architecture. If it be in one sense fettered by the material conditions which are essential to its realisation, it may see in them, on the other hand, a boundless scope for infinite advance and improvement; only it must know in what direction to look. Allied to science, ever advancing, ever learning, there can be no reason why our art should not share and illustrate its glories. It may be that its future triumphs may differ in kind from its past glories, but there can be no reason why they should be less conspicuous. It has ever been the special privilege of architecture to illustrate its own epoch. The tombs and temples of Assyria and Egypt are eloquent of those who built them, in the same degree as are the temples of Greece, the monuments of Rome, and the cathedrals of Mediæval times. Nothing can be more touching than the intensely human desire for permanence which seems to pervade these works. The builders of the Tower of Babel did but illustrate man's craving for something that might remain, —a passive rebellion against the dread fiat, "Thou shalt surely die." And so in all ages architecture has been the central point of those associations which have tended to elevate the mind from the sordid cares of the moment, and fix it on the glories of the past and on the hopes of the future. A natural conservatism has therefore been the product of the love for our art, and in no day has this been more evidently displayed than in our own times. Indeed, it may be feared that with us its influence has not been wholly for the advantage of art. The world is only at the beginning of its education, and each day adds to the sum of its knowledge. To explore the secrets of science and natural philosophy, to apply the discoveries of the closet to the comfort and well-being of millions, are now the noble duties of the best among us. By the invention of printing, the human child (if I may use the metaphor) learnt to speak. By the discovery of the steam-engine it began to move. Electricity has taught it to concentrate its energies and to use its powers, and seems to indicate a boundless extent of future acquisitions and progress. Shall architecture lag behindhand? It has never done so before. Each age has told its own story in stone. The feelings of every epoch have found in it their appropriate expression, and loyalty to his art will not permit the artist to despond for the future. If, indeed, he allow himself anxiety on the subject, it can only be from perceiving on the one hand something of a tendency amongst architects to regard archæology as architecture, and on the other a disposition on the part of the public to deny to art its rightful place in the economy of things, and to reject its claims as a noble and elevating instructor of the people. I have just said that every age has told its own story, but this statement must be limited in its application. In modern times architecture has even seemed to renounce its claims to originality, and to be content with the subordinate position of an imitator. It has resulted from this that works are too often valued for their technical correctness as copies rather than for the qualities of art which they display. Architecture has been hastily assumed to be incompatible with utility, and we have been expected to be content with its dry bones. It must, however, never be forgotten that architecture, though a fine art, is also a useful art, in a manner distinct from its sisters of painting and sculpture. It is subject to conditions from which they are exempt. It fulfils useful functions, of which they have no knowledge. As a fine art, it is never complete without their aid, but it also depends for its perfect success on its more or less skilful adaptation to useful ends. Hence it follows that an architect must study convenience, and must be guided by common sense, if he is to produce really successful work. If he practises his art in defiance of common sense, failure will result as surely as from any negation of the higher qualities of art. This may seem the assertion of a truism, but in reality common sense is not common, and its

legitimate influence in architecture is too often overlooked. Thus, in an age which revels in the facilities given by the employment of iron for covering large spaces, we frequently see the timid constructions of bygone days copied even to the smallest details, and the province of improved construction abandoned to the civil engineer. Interiors where the powers of seeing and hearing are all important are encumbered with useless columns, for the sake of supposed architectural effect. Houses are built like castles, and light and air denied to their inmates. All this is degrading to the character of true art; and, speaking to its younger practitioners, I may perhaps venture to ask them to consider if the prevalence of such ideas among architects may not account for much of the general apathy and ignorance about architecture of which there is so much reason to complain. For we are often told that our art does not at present command the respect and sympathy which are its due. There is probably no civilised country where art and its professors receive less of public honours and rewards than our own. Men of high cultivation, who would shrink from avowals of ignorance of science or history, think it no shame to know nothing about art. Indeed, even those who from circumstances might seem bound "to affect a virtue if they have it not," sometimes appear to take a special pride in showing their low estimate of its civilising influence. It is scarcely possible that in the capital of any other cultivated nation the exclusion of art from a public building could be made a matter of public congratulation. There was a time when our leading men thought otherwise, and used far different language; and it is to be hoped that in art, as in other matters, means may even yet be found to "educate our masters." In a really art-loving community a different state of things would be demanded, and ignorance would, at least, be unable to boast itself. I have already referred to some of the causes which may have served to bring about low ideas of our art, as far as they relate to the action of architects themselves. But, in truth, these are merged in the greater question of education. Architecture is now a profession, and on its fruits its professors must live. This circumstance has an important effect, and may render the production of masterpieces of art difficult and uncertain. One result it certainly has, namely, to leave to the architect a diminished responsibility and freedom of action. A true artist will, of course, assert his legitimate influence, but in the practice of a practical art like architecture, the views and tastes of the public must be considered. There is, consequently, too often a *fashion* in architecture. Now a fashion is not in itself a necessarily bad thing. We have already seen that bygone ages have left their marks in the world's history by building after the fashion of their day. We know, when we see the sculptures and hieroglyphics of the Egyptians, that if we can decipher them we shall be admitted into their secrets, public, social, and domestic. In other words, we shall know the fashion of their time from the records they have left of it. It was the same with all times when architecture was a living art. The fashion, therefore, which is to be deprecated is something different from this. It is the fashion of copying, the fashion of arbitrarily selecting a certain form of bygone art for deliberate and servile imitation. It is the return to obsolete modes of constructions for reasons apart from their intrinsic goodness, a deliberate preference for something less than perfection. Now on these points it is not fair to wholly blame the architects. They cannot exercise their art without the public, and if the public wish to be deceived by semblances of art, it will be so deceived. There are, of course, degrees in such compliance, and the real artist will at any sacrifice decline to wholly prostitute his talents. In so doing he must, however, be prepared to stand aside in empty protest, and see the practice of the art he loves so well pass into other hands. Doubtless there is much in the state of modern architecture for which the architect must take his share of responsibility; but the first necessity for the revival and possibly the eclipse of former glories is the formation of a healthy tone of critical appreciation of his work; in a word, the diffusion of art-education. The circumstances of our day appear to be specially favourable to this diffusion, at a time when the absolute need of education has been solemnly recognised by the State. Knowledge is power, and the true policy of a community is to secure their connexion. If no other sign of the world's progress were evident we should find it in the increasingly-admitted obligation to procure for the masses that which they cannot obtain for themselves. Where in Egypt, Greece, or Rome are to be found the hospitals and schools which are the sign of this now-confessed public duty? Costly and magnificent buildings were there, devoted to the superstition, the cruelties, the vice of the times; none for the relief and elevation of suffering humanity. There is much in the experience of the day to jar rudely on our ideas of progress as affecting human happiness. War, terrible and dread, among civilised nations, must seem to the watching heathen world a strange commentary on the old saying, "See how these Christians love one another." The curse of pauperism at our doors ought to cause us anxiety and misgiving. A thousand social sores call for remedy, and bid the philanthropist-reformer give no truce to the opposing powers of evil. But in spite of the urgent calls for improvement around us, it may be claimed for the present age that in none has there existed a more real desire to improve, in none has the principal *raison d'être* of government been so readily admitted to be the maximum happiness of the greatest number. We may therefore look forward with confidence to sure, if slow, amelioration, to be obtained by the spread of real and thorough education. And from this place I may perhaps be allowed to say that no education can be real and thorough from which the joys of art, with all their elevating and civilising influences, are excluded. Can it be doubted that in Greece every man, from the noble to the peasant, entered, more or less into the triumphs of art, which were to them as household words, and were so conspicuously displayed that each man might feel a sense of property in them? May the day come in our own country when the toiling masses may assert their right to insist on such an employment of the public resources as may provide, on a worthy scale, museums, pictures, sculptures, and other works of art for the instruction and delight of a great and art-loving people. It will be unfortunate for all if our boasted education is to stop short. Knowledge without education may, in that case, prove a curse. The imagination, the love of beauty, the desire to gratify the senses, will exist whether they are cared for or no. Shall they be relegated to the debasing influences of excess and debauchery, or shall art be called in to instruct, to refine, to delight, to co-operate with religion in bringing out the God-like part of our poor human nature? It is very satisfactory to find that a recognition of this principle has at length been made by our two great Universities of Oxford and Cambridge. By the munificence of an individual, chairs have been founded for the instruction of the students in the history, theory, and practice of the fine arts. Looking to the advantages of diffusing a knowledge and love of such matters among the classes that frequent the Universities, the importance of this onward step can hardly be overrated; and it may perhaps be allowed to me to express my special satisfaction that one of these important posts is filled by a brother architect, of whose eminent qualification for his labour of love there can be but one opinion. Coming nearer home, a word of reference may be permitted to the steps recently adopted by this Academy to spread the instruction they have ever been ready to afford, and to assist the steps of the art-student in his arduous path. Additional teachers have been appointed in each of the three branches of art, whose province will be to instruct their pupils in fundamentary principles, and so prepare them for that higher instruction which individual members of this body have at all times cheerfully given in a spirit of self-sacrifice which is perhaps hardly known as it should be, but of which one who, like myself, has had no share in such work, may, perhaps, as a spectator, be permitted to express his appreciation. Other art bodies have not been backward, and the Royal Institute of British Architects has framed and carried out a scheme of examination so comprehensive as to be for the moment almost in advance of the demands made upon it. The increasing number of periodical exhibitions is also to be noticed, and the opportunities for art culture afforded by the museums and collections and schools at Kensington are matters of much congratulation. The vast numbers that visit these collections, are the best witnesses of the readiness and intelligence with which the people avail themselves of opportunities when they are offered with a free and liberal hand. It is to be hoped that nothing may be spared to maintain and further such efforts to aid and guide the art knowledge of the country. Any direct teaching can of necessity reach but a small number. The art-education of the masses must be chiefly the education of the eye. I will not subscribe to the belief in the natural inferiority in art matters of the English artizan, at least until he has had a fair trial. How few and scanty are his opportunities as compared with his more favoured foreign brethren! A climate unfavourable to out-door enjoyment,—a system of Government which has millions for every purpose but art,—a policy which shuts in his face our public galleries on the only day when he can visit them,—these are some of his hindrances in the cultivation of his taste. It is idle to suppose that after a hard day's toil his mind can be in a state to study and enjoy the arts. It should be the duty of those who still believe in these purifying and ennobling influences to smooth these difficulties, and under proper regulations to throw open the means of self-instruction at such times as may render such instruction practicable. Then, and not till then, shall we find artistic culture spread and increase. Consideration for art will find a tardy recognition in the national councils, and the end may be looked for of that boastful ignoring of its claims which, sublime in ignorance, is ignorant and not ashamed. I cannot but look forward somewhat hopefully to the future, considering the changes made and in progress as to the distribution of power in the State. How far such changes are valuable politically is not to be discussed here, but in the interests of art they may have a considerable and possibly an advantageous effect. To interest the people in the national collections, no means can be surer than to give them a sense of property in them. Many of us have doubtless been struck by the advances made in our provincial towns where the inhabitants are masters of their own affairs in a manner which is denied to dwellers in this overgrown metropolis. It is true that paternal government is now discredited, and men govern for themselves and by themselves; but without the action of Government any national recognition of art is impossible, and the purchase of pictures and sculpture, and the erection of fine public buildings, form a proper subject of national concern. It is impossible to repress a feeling of disappointment when we compare our poor and unsatisfactory art buildings with the splendid structures erected by foreign nations for similar objects, but with far less means and opportunities than we possess; and there can be little doubt that the real opinion of an instructed public would soon be clear on such points if it could be heard amidst the noise of its self-elected exponents. In this country economy will, it is to be hoped, be always considered; nevertheless, the greatest crimes have often been committed in the name of the greatest virtues. There can be no true economy in starving all that relates to the artistic progress of a nation, while millions are readily expended for purposes of human slaughter. These considerations affect in a special way the branch of art now under our consideration, for it is one of the chief difficulties of architecture that it depends on others to allow it even to exist. This difficulty is shared to a certain degree by sculpture. The drawing of a building rarely if ever can convey a true idea of its architectural effect, and before the building can exist a large expenditure must be incurred. The great architectural monuments which remain to us were public buildings erected on a scale of grandeur and expense beyond the reach of individuals. Architecture must, therefore, always be more or less dependent on the growth of a healthy and enlightened public spirit, removed as far from meanness as from extravagance.*

## THE ACTION OF COLD ON IRON.

A DISCUSSION has been going on as to the action of cold on the strength of iron. Every one knows, we dare say, that the breaking of axles on railways is oftener heard of in winter and in frost than at other times. Nevertheless, some eminent men of experience seem to believe that frost does not render iron more brittle than at other times. The discussion of the subject, at the Manchester Literary and Philosophical Society, and the apparent indecisiveness of the experiments for ascertaining the effects of cold

* To be continued.

upon iron, recently brought before the society, have induced Mr. P. Spence to undertake a further series. He limited himself to ascertaining whether the reduction of temperature has any, and if so what, effect on cast-iron with regard to its powers of resisting transverse strain either of weight or pressure. As experiments made with iron of special quality are quite worthless for all practical purposes, Mr. Spence was careful to obtain such as might be considered as generally obtainable in the market. Mr. Spence's experiments are said to prove that "cast-iron, having at 70° Fahr. a given power of resistance to transverse strain, will, on its temperature being reduced to zero, have that power *increased* by 3 per cent." At the temperature of 70° Fahr. the maximum breaking weight was 4 cwt. 3 qrs. 26 lb., and the minimum 2 cwt. 2 qrs. 14 lb., equal to an average of 3 cwt. 3 qrs. 6 lb. At zero, the maximum breaking weight was 4 cwt. 3 qrs. 13 lb., and the minimum, 2 cwt. 3 qrs. 10 lb., equal to an average of 3 cwt. 3 qrs. 11 lb. The difference, therefore, is but 5 lb., or less than 12 per cent. increase by the reduction of temperature. Adding together, however, the breaking weights of the seventy samples tested at 70° Fahr., the total is 268 cwt. 3 qrs. 18 lb., equal to an average of 3 cwt. 3 qrs. 10½ lb. The total breaking weight of seventy samples tested at zero was 276 cwt. 3 qrs., equal to an average of 3 cwt. 3 qrs. 22¾ lb. The difference thus shown is 12¼ lb., or about 3 per cent. increase, as Mr. Spence states.

Mr. Brockbank gives the result of a renewed inquiry in these words:—"Iron is weaker under sudden impact at low temperatures, although not materially weakened under tensile strain."

## EXHIBITION OF THE ROYAL SCOTTISH ACADEMY.

THE exhibitions of the Scottish Academy present, year after year, much the same aspect: the works, certainly, are different, but the ideas vary not. Works of a high order are rare; a respectable mediocrity prevails, interspersed with no inconsiderable admixture of what is far from being satisfactory. In technical excellence there is a gradual and steady progress, but unaccompanied by a like advance in originality and expression. Much of the work is honest, and does not misrepresent nature, but some of it is unreal and, in a sense, mechanical.

It sometimes happens that an artist, after working for years in a particular manner upon a certain class of subjects, suddenly changes both of these. The effort is not unfrequently spasmodic; but occasionally the artist achieves an unlooked-for success, and continues to follow the new path. Such, we hope, will be the case with Mr. R. Herdman. Hitherto his pictures have been of the drawing-room sort, pretty and carefully elaborated; but No. 467, "After the Battle: a Scene in Covenanting Times," is sombre in colour, as befits the subject, vigorous in execution, and full of pathos. A young Covenanter has been brought home mortally wounded. He is laid across two chairs, his head propped on some loose straw, his wife kneels at his side clasping one of his hands, while an aged woman,—his mother, we presume,—laves his temples with water from a basin held by a young girl. There are several other figures introduced, all of them with an object, and the better to illustrate the incident; as, for example, an old man who has been reading from "The Book," and, as showing the all-absorbing interest of the crisis, the baby in its cradle is thrust away under a table. The mixed expression of suffering and fortitude upon the face of the young warrior is depicted with great truth and force, yet without exaggeration.

Opposite to this picture,—and its opposite in every sense,—is No. 557, "Wishart preaching against Mariolatry," by W. Fettes Douglas. An air of exaggerated unreality pervades the scene,—a crowd of lay figures, arrayed in the costume of the period, attitudinise in a theatrical manner, and the colour is that of a crude modern stained-glass window.

As examples of rich colour toned into harmony nothing could be much finer than 252, "Prayer," and 309, "Reflected Light," by G. Paul Chalmers. The artist has probably attained all he has aimed at, and it is no mean attainment; but we look for something more:—

> "The outward form is fair,
> But the inner soul is wanting."

There are some things beyond the legitimate sphere of art, and No. 837, "The Commander-in-Chief in the Crimea, and Staff: January, 1855," by Sir Noel Paton, is one of these. Our readers who have not seen this work may naturally remark that the subject is commonplace enough; but when we state that the warriors and steeds are "grizzly skeletons," the matter may appear in a different light. This mode of teaching the horrors of war is more suited for the pages of a *Tomahawk* than for a fine-art gallery. It is only an uncoloured sketch, however, and may be looked upon as a freak of the artist. Turning from this to No. 272, Mr. Hugh Cameron's group at "The Village Well" is a wholesome relief,—it is like a bouquet of spring flowers, fresh and lovely. Mr. W. E. Lockhart follows successfully in the steps of the late John Philip. No. 1, "A Spanish Venta: Muleteers departing," displays much of the vigour of touch and brilliancy of colour which characterise the works of that master, combined with appropriate action and expression. No. 48, "Van Tromp's Duel," by J. B. McDonald, is a subject taken from the history of the Dutch Republic. "This is a barrel of gunpowder," said Van Tromp: "come, sit down beside me. The bravest man will set fire to it." The scene is graphically set forth, but the colour is somewhat muddy and opaque.

Two years ago we noticed favourably a work by Mr. Edwin Douglas, a young artist, as exhibiting promise, in the department of animal painting. He either lacks invention or has been spoilt by commendation. Last year his subject was the same animal as before,—a sagacious-looking sheep-dog,—and again we have him, twice over, with exactly the same accessories, and painted in the same smooth, soft manner. Mr. R. P. Bell seems disposed to give up depicting cavaliers, and to turn his attention to scenes of every-day life. The change is, we think, in the right direction. No. 490, "The Lesson," representing a cottage interior, with an old man teaching two girls, is well and carefully painted, and the expression of abstraction on the face of one of the girls happily rendered. Mr. John Dun's "Country Wedding" (37) deserves commendation. The artist is a young man, and his work, though not free from affectation, is better as a work of art than some productions of men of established position. The effect of sunshine is particularly well rendered, but the manner in which the bride leans her head to one side and the bridegroom to the other may be natural, but looks queer.

Scenes upon the sea-coast, introducing groups of our fishing population, are now receiving deserved attention. Mr. Mactaggart took the lead in this line, and still holds the foremost place. He exhibits No. 327, "Adrift," which appeared at the last Royal Academy; he has since bestowed more labour upon it, and added greatly to the effect. Mr. Vallance continues in the even tenor of his way upon the same class of subjects, and Mr. Colin Hunter goes on improving. It is in landscape-painting that the Scottish school appears to greatest advantage, and a class of young men are arising who bid fair to maintain a good position. In feeling and sentiment Sir George Harvey has no rival, but his subjects lack variety of expression. No. 355, "Inverarnan," is a characteristic example; "all around is still and calm, as if nature were asleep." Mr. Sam Bough paints nature in all her moods, and if his works are not pervaded by the sentiment of the President, they possess a truthfulness and force of expression which are more lively and impressive. No. 152, "Iona," shows us the resting-place of the ancient Celtic kings on a day in "the bright, brief summer of the Western Isles," when not a cloud flits across the sky. A tall runic cross stands boldly out in the foreground, a roadway leads to the hoary ruins, and behind is a range of low hills. Every feature is clear and distinct, and yet the effect of distance is wonderful,—a phase of nature very difficult to render.

No. 62, "The Vale of St. John," is another fine landscape, with gleams of sunshine streaming through clefts in a bank of clouds, and gilding the hill sides.

No. 190, "Gumping Trout on Gifford Water," by W. D. McKay, is a very promising production; the rapidly-flowing brook, with its grassy banks and bosky dells, are rendered with great care, yet without hardness, or producing the effect of being laboured.

"Purple, orange, and gold glow down in the glowing West," on every canvas of Mr. Walter Paton's. Very pretty and popular they are; better that he should continue to follow the bent of his nature, and produce those clean highly-finished works, than degenerate into the slovenliness displayed by Mr. Alexander Fraser. No. 175, "Inverlochy Castle," is not deficient in a certain artistic ability, but it smells of paint, and is harsh in colour: some people say it is *juicy*, but the moss and stones of an old ruin are not juicy, and do not appear so even when they are *spongy*. Mr. Fraser did at one time bestow more care upon his work, and he is in error if he thinks he can dash off an effect after the manner of Bough. Mr. Arthur Perigal has been in Norway, and, according to his rendering of the scenery, the mountains there are even more hard and metallic in appearance than he would have us believe are those of our native land. No. 720, "Romsdal, Norway," is a grand scene undoubtedly, but why the picture was purchased by "The Royal Association for promoting the Fine Arts in Scotland," is to us a mystery.

We have confined our remarks to a few of the works by Scottish artists, our object being to give our readers an idea of what is being done in the sister country; no notice therefore has been taken of the works of Maclise, Birket Foster, Pettie, and others which adorn the galleries; or of those of foreign artists, of which there are a small number, smaller indeed than usual. Architecture, in our next.

## ENGLISH STABLES IN THE EAST.

THE accompanying illustrations represent the interior and exterior of a portion of stable buildings designed and erected for an Eastern potentate, and fitted up by the St. Pancras Iron-work Company, of Old St. Pancras-road, London. The stables, built to accommodate 100 horses, consist of stalls and loose boxes, ample in size, and provided with every requisite for the comfort and safety of the horse; the divisions being formed of wrought-iron posts, ventilating ramps or grating, and cills; the feeding arrangements comprise enamelled manger fittings; and the drainage is effected by properly trapped pots. The window-openings in the sides of the stables have galvanized wrought-iron Venetian shutters, with movable louvres. These shutters are so formed that they can be opened or closed bodily, if required, or can remain closed, and have the louvres in them adjusted to different widths of opening. By these means a greater or less quantity of light and air can be admitted whenever necessary. The stables are lighted by handsome copper lamps, suspended from the ceiling.

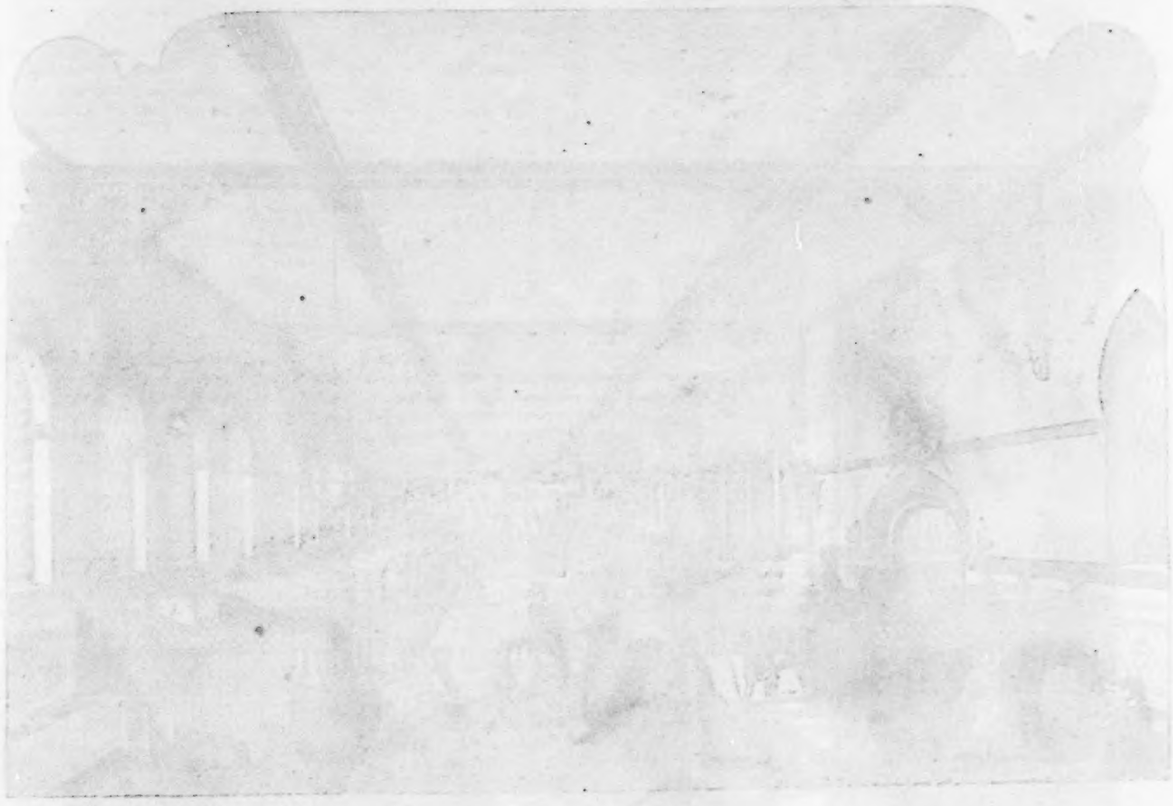
The roofs of the stable are entirely of iron. The principals consist of rafters, king and queen rods, ties, struts, &c., all of forged iron. To these principals are fixed the longitudinal windties, and the wrought-iron purlins carrying the galvanized corrugated iron sheeting, forming the roof-covering. The whole of this work is designed and constructed to combine, in an eminent degree, the two essentials of lightness and strength, and so to assist in the ventilation of the stable as to keep it cool during the hot season.

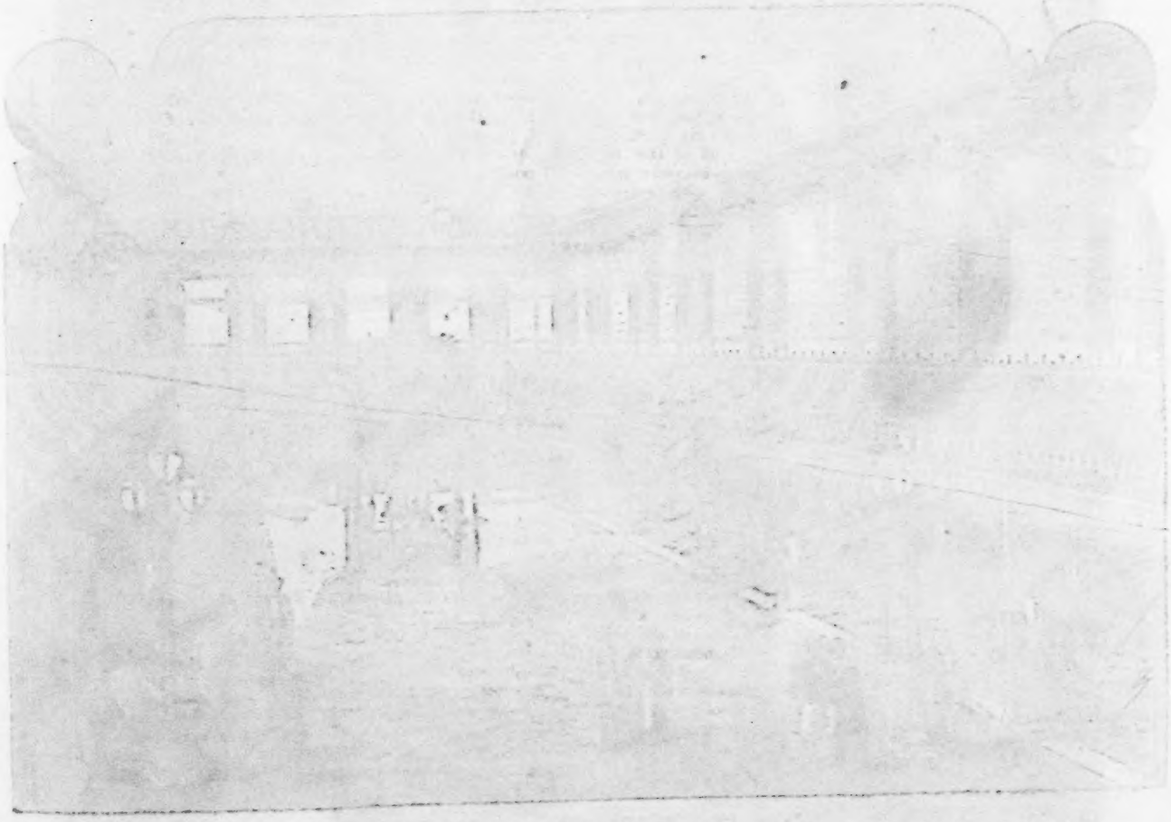
Attached to the stables are harness-rooms, with all things requisite for the protection and preservation of the harness; and a farrier's forge fitted up and provided with tools, iron, &c., ready for immediate use.

The exterior view represents the courtyard formed by the stable buildings. In the centre is a kiosque, constructed entirely of iron, and elaborately ornamented in all its details. The kioseque is surrounded by a marble basin holding water, giving thereby the cool and refreshing appearance so necessary to all Oriental constructions. The ride for exercising is formed round the sides of the adjacent buildings, and is covered in by a spacious verandah, formed also of iron, with columns, girders, frieze, and spandrels of an ornamental character. In convenient parts of the courtyard are fixed enamelled water-troughs for the horses, providing a ready means of watering them without entering the stable.

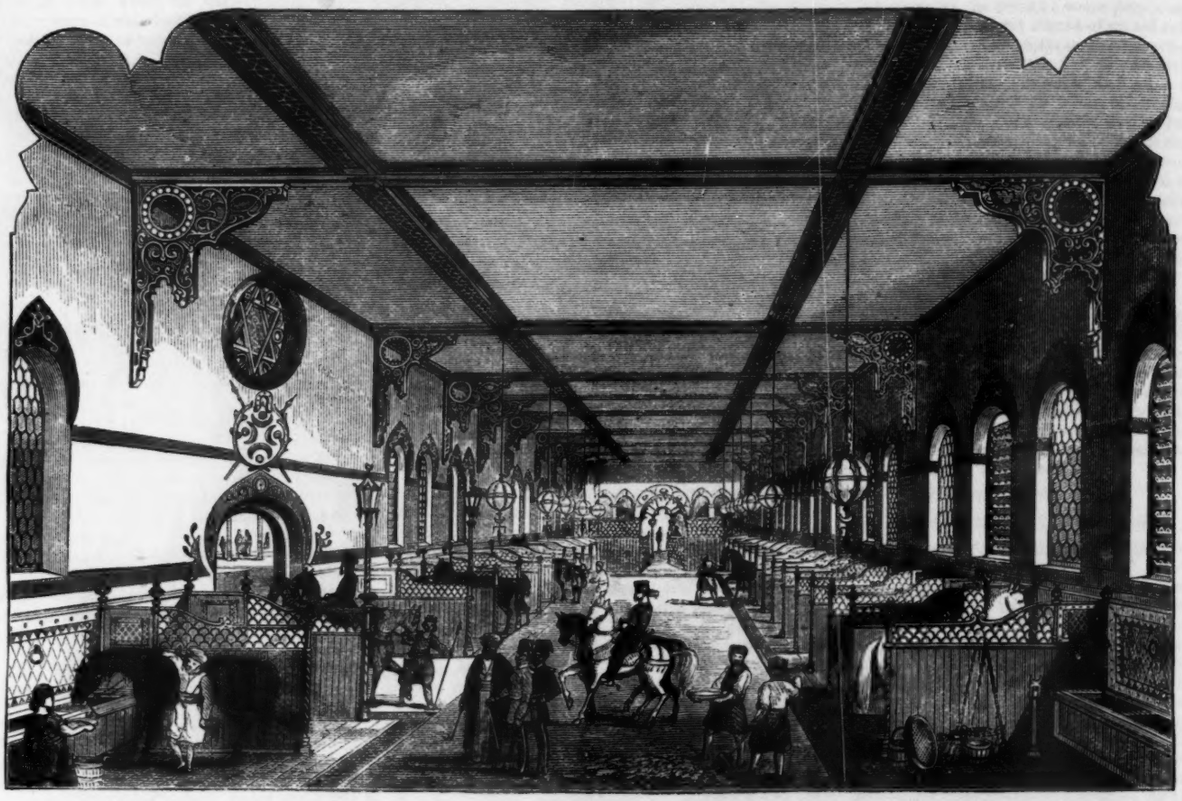
The water is obtained from wells by means of powerful pumps worked by steam power, and is stored in an extensive cast-iron tank, properly stayed, and roofed in with galvanised corrugated iron.

The whole of the work described has been performed by the company to designs and plans furnished to them. Every part has been so constructed that the whole can be readily put together by unskilled labour, and in other respects the varied requirements of an Eastern life have been carefully considered.

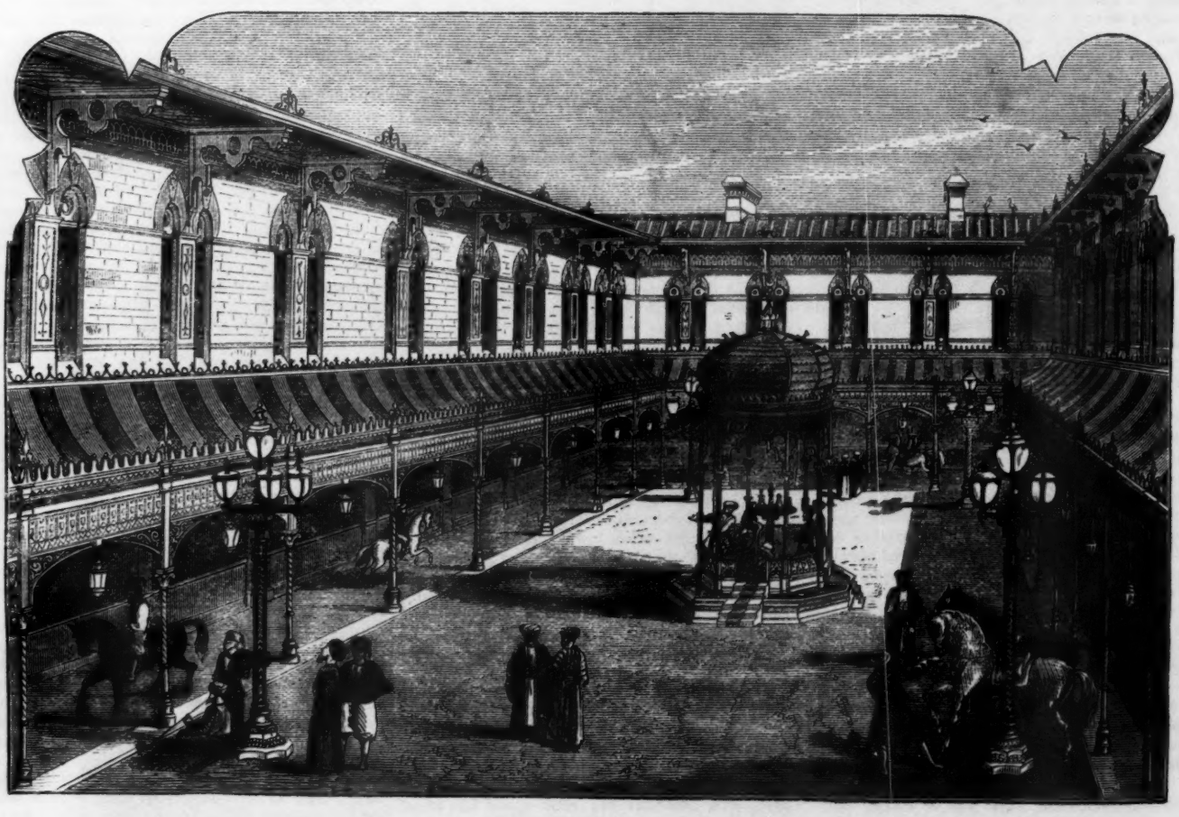




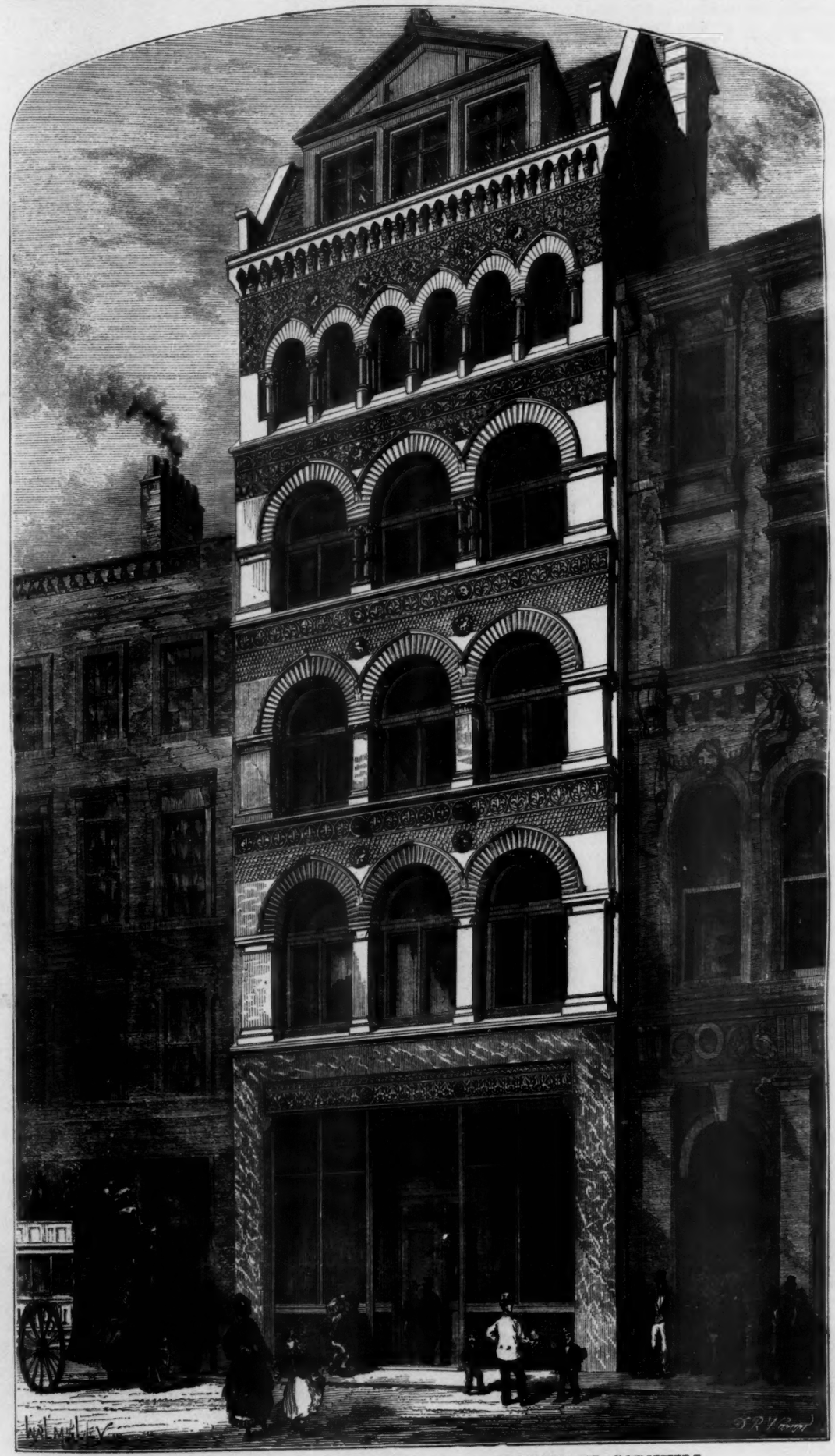
## ENGLISH STABLES IN THE EAST.



INTERIOR.



COURT YARD AND RIDE.



LONDON STREET ARCHITECTURE: PREMISES IN CORNHILL.

MR. EDWARD I'ANSON, ARCHITECT.

LONDON STREET AS IT WAS: PREMISES IN COURSE.
Mr. Edward Tabor, Architect.

## LONDON STREET ARCHITECTURE.

PREMISES, CORNHILL.

WE give in our present number an illustration of the Cornhill front of the premises belonging to Messrs. Henry S. King & Co., No. 65, Cornhill, which have been quite recently completed by Messrs. Wm. Cubitt & Co., of Gray's-inn-road, from the designs and under the superintendence of Mr. Edward I'Anson.

The premises, although they occupy a comparatively narrow frontage upon the street, extend back to a depth of about 80 ft., and have a considerable frontage upon the north and east sides in White Lion Court, which is entered by a passage-way under the house adjoining No. 65 Cornhill, to the eastward. The new building is divided into two blocks, separated by an area 8 ft. wide, lined with glazed tiles, and connected on the upper floors by light galleries, the lower part on each floor enclosed with white enamelled slate, and the upper part glazed. The whole of the windows of the back portion, with the exception of the ground-floor, have cast-iron casements fixed flush with the outer face of the walls, with cast-iron lintels over. The inside reveals of the windows are lined with white glazed tiles, and the external angles throughout are rounded. The floors and staircases are of teak, 1¼ in. thick. The rolling shutters to the ground-floor windows were provided by Messrs. Warren, Hands, & Co.

The whole of the Cornhill front, with the exception of the ground and attic floors, is constructed of terra-cotta, with a backing of brickwork in Portland cement. The enriched strings under the one-pair, two-pair, and three-pair windows, as well as the shafts to the windows on the three-pair floor, are of a deep red colour; the rest of the work is of a warm buff colour. The terra cotta was modelled and entirely executed by Messrs. Cubitt at their works in Gray's-inn-road, under the direction of the architect. The piers to the ground-floor, as well as the architrave over the ground-floor, are of Aberdeen granite, finely tooled, but not polished. The dormer to the attic story is of deal, covered with lead. The shop front and the sashes to the windows next Cornhill are of mahogany, glazed with plate glass. The old house was pulled down in June of last year; the rebuilding was commenced immediately afterwards, and was completed by the end of the year, Messrs. Henry S. King & Co. having had possession of a portion of the building some weeks previously. The amount of the contract was 10,367l., exclusive of painting and ironmongery.

The old building which has been replaced by the present structure presented no feature of interest architecturally. It was built probably somewhere about the middle of the last century, and at the time of its demolition was thoroughly worn out. In a curious drawing of the parish of St. Martin Outwich, and part of the parish of St. Peter in Cornhill, dated 1599, preserved at Merchant Taylors' Hall, the houses on the north side of Cornhill, opposite St. Peter's Church, are very distinctly shown. The house on the site of No. 65, as well as those adjoining, appear to have been small two-story houses, with rooms in the roof, and gables towards the street. The fountain, or *carfax*, as it was called, from its having four faces, at the intersection of Cornhill with Bishopsgate-street, is also shown in the drawing, and the pipes leading therefrom are indicated, apparently with great accuracy.

This fountain, *carfax*, or *carrefour*, was better known as the Standard on Cornhill, from London distances having been computed from it. It was built in 1585, and was first used as a water standard in connexion with the waterworks at London Bridge. It existed until the Great Fire, sometimes dry and sometimes overflowing, and was frequently presented by the inquest of Cornhill Ward as a nuisance as "the carrefour and foure spowts." It was not entirely destroyed by the fire of 1666, and Evelyn notices it in his diary as still standing after that catastrophe. It was taken down in 1671.

Cornhill was just on the edge of the boundary of the Great Fire, it having stopped near the Standard on Cornhill. The house No. 65, Cornhill, was no doubt consumed. In the year 1765 another great fire took place, destroying the whole of the houses on each side of Bishopsgate-street, from Leadenhall-street to Threadneedle-street, extending as far as White Lion-court, to the east, and to a depth of seven houses in Leadenhall-street, westward, as far as the Bull Inn. This fire, like a similar one which destroyed nearly the whole of the south side of Cornhill, in the year 1746, began at a peruke-maker's. It is possible that No. 65, Cornhill, was rebuilt about this time; the construction of new buildings in the neighbourhood, necessitated by the fire, would, no doubt, stimulate the rebuilding of old-fashioned houses, and the premises recently demolished bore every appearance of having been erected about this date.

The old house in Cornhill is memorable from its association with Leigh Hunt, Thackeray, Charlotte Brontë, Mrs. Gaskell, and other eminent writers. It was there that in 1847, after a wearying round of refusals from various London publishers, the authoress of "Jane Eyre" determined as a forlorn hope, to send the MS. of her novel, "The Professor," which she afterwards elaborated into "Villette." "It came," says Mrs. Gaskell, "in a brown paper parcel, to 65, Cornhill . . . . Besides the address to Messrs. Smith, Elder, & Co., there were on it those of other publishers, to whom the tale had been sent, not obliterated, but simply scored through, so that Mr. Smith at once perceived the names of some of the houses in the trade to whom the unlucky parcel had gone without success." "The Professor" was declined at that time, but emboldened by the terms in which the refusal was conveyed, the MS. of "Jane Eyre" was submitted to the same publishers in August of the same year, and published by them in the ensuing October. In the following year, Charlotte Brontë, accompanied by her sister Anne, came up to London, in order to confute the assertion made by "Acton and Ellis Bell's" publishers, that the authoress of "Jane Eyre," "Wuthering Heights," and "The Tenant of Wildfell Hall," were one and the same person. It was to No. 65, Cornhill, that the two girls made their way, after taking an hour to walk from the Chapter Coffee-house, Paternoster-row, and presented themselves to their publishers, who were ignorant of their person and sex, and had imagined, as did all the world at that time, that Currer, Ellis, & Acton Bell were men.

From the same premises issued the *Cornhill Magazine*. "Our storehouse being in Cornhill," explains its first editor, W. M. Thackeray, in a letter to a friend forming the preface to the first number, "we date and name our magazine from its place of publication." Father Prout (F. Mahoney) contributed an inaugural ode on the occasion, in which he gaily rallies the editor:—

> "There's corn in Egypt still
> (Pilgrim from Cairo to Cornhill);"

and advises him—

> —— "as to those
> Who bring their lumbering verse or ponderous prose
> To where good SMITH & ELDER
> Have so long held their
> Well-garnish'd Cornhill storehouse—
> Bid them not bore us,
> Tell them instead
> To take their load next street, the Hall of Lead."

Thackeray himself alludes to the house in the first of his "Roundabout Papers":—"I had occasion," he says "to pass a week in the autumn in the little old town of Coire or Chur, in the Grisons, where lies buried that very ancient British king, saint, and martyr, Lucius, who founded the church of St. Peter which stands opposite the house No. 65, Cornhill." After describing the statue of the saint, he remarks,—"From what I may call his peculiar position with regard to No. 65, Cornhill, I beheld this figure of St. Lucius with more interest than I should have bestowed upon personages who, hierarchically, are, I dare say, his superiors."

The firm of Smith, Elder, & Co., which for many years carried on business on this spot, was founded in 1818 by George Smith and Alexander Elder. In 1846 Mr. Smith died, and Mr. Elder retired from business, leaving the affairs of the firm in the hands of Mr. George Smith, jun. The increasing business of the house, especially in the departments for East India and Colonial Agency and Shipping, rendered it necessary to divide the responsibility of conducting it; and in 1853 Mr. Smith was joined by Mr. Henry S. King. The business soon outgrew the premises, and advantage was taken of the removal of the India Office from Leadenhall to Westminster to occupy a house in Pall-mall for the banking and agency branches, which required constant communication with the Pay and other departments under the Secretary of State for India.

In 1868 a dissolution of partnership took place. Mr. Smith removed to Waterloo-place, taking with him the book publishing department and the old style of Smith, Elder, & Co. All the other branches of Smith, Elder, & Co.'s business remained at Cornhill and Pall-mall, the only change being in the designation, which thenceforward became Henry S. King & Co. One of the first steps of the new firm was the establishment of branch houses at Bombay and Calcutta. Their growing trade with the East, which has shown capabilities of further extension since they established these direct branches in India, determined the firm to substitute the present handsome and convenient edifice for the old-fashioned and ill-adapted structure formerly standing in its place.

## LIVERPOOL ARCHITECTURAL SOCIETY.

AT a recent meeting of this society Mr. C. H. Beloe gave particulars of "A Ramble through Bristol." Speaking of the improvements now being made in the Bristol Docks, the lecturer said,—

Two new locks are in course of construction, one leading from the river into the Cumberland Basin, and the other from the basin into the floating harbour. They are each 350 ft. long and 62 ft. wide in the clear. The outer lock is most advantageously situated with regard to the direction of the main channel, so that long ships can easily enter or depart from the docks; whereas, at present, owing to the entrance being nearly at right angles to the very narrow river, vessels coming out of dock frequently run into the opposite bank before they can be turned down the stream. Several of the abrupt corners which occur on the river, between the port and the Severn, are being removed, and the channel straightened as much as possible. A branch railway from the Great Western Railway is also being constructed, to terminate on the quay of the western harbour, near Prince's-street Bridge. All these improvements have, no doubt, been carried out by those interested in the port of Bristol, in order to enable them to compete with the new docks now in course of construction at the mouth of the river, of which Mr. Brunlees is the engineer. The new locks at Bristol are being built in the most substantial manner. The stone is obtained from the excavations on the banks of the river below the suspension-bridge, and appears to be of excellent quality. The plan adopted in bedding these stones is somewhat peculiar. The beds are only worked fair for a brick thick from the face; a course of bricks is laid between the stones, and in some instances in both vertical and horizontal joints; the remainder of the joint is made up of small stuff and mortar. This plan was adopted to save labour in dressing the stones, which are very hard; but I doubt whether it is a good one, as the bricks in the face will certainly perish sooner than the hard stone, and in any case the joint cannot be so good as stone on stone, and I certainly prefer the granite rubble walls which have been adopted with so much success in the walls of the Liverpool docks, which plan, when hard stone has to be used, saves more labour than the Bristol fashion. I only noticed this system in the inner lock, the walls of which are completed; in the outer lock it does not appear to have been adopted. The copings and hollow quoins are of granite, and the gates of timber. These works are being executed from the designs and under the superintendence of Mr. Thomas Howard, C.E.

## THE INSTITUTION OF CIVIL ENGINEERS.

ON February 28th, Mr. C. B. Vignoles, F.R.S., president, in the chair, the paper read was, "An Account of the Basin for the Balance Dock, and of the Marine Railways in connexion therewith, at the Austrian Naval Station at Pola, on the Adriatic," by Mr. Hamilton E. Towle, of New York. The harbour of Pola, naturally favourable for the purposes of a naval station, was selected by a committee of Austrian engineers and officers, as the most suitable that could be chosen for the extensive arsenal and dockyards, which it would be necessary to construct when the port of Venice was abandoned. It was situated directly south of Trieste, on the western coast of the peninsula of Istria, south-west of Fiume, and about sixty miles distant from both those ports. Venice, on the other side of the Adriatic Sea, was eighty miles distant in a north-westerly direction.

It was at first intended that excavated docks should be formed, but, in consequence of the volcanic and treacherous nature of the ground,

this idea was found to be impossible of execution. A floating dock, basin and railway system were therefore decided upon, the dock adopted being that known as Gilbert's Balance Floating Dock. The basin and railways were in general principles the same as those constructed at the United States' Navy Yards at Portsmouth, New Hampshire, and at Pensacola, Florida. These were the first dock basins with railways that had been constructed, and were commenced in the year 1849.

The function of a basin for a floating dock was to supply a place in which the dock itself might be grounded, either with a vessel upon it to undergo extensive and prolonged repairs, or to enable the vessel to be hauled out of the floating dock upon the railways, which latter operation was only required in cases where vessels were moved from the dock to land above the sea level, or the reverse. A basin to fulfil these requirements must be so constructed as to permit the dock to be floated into it, and the entrance closed by means of gates or caissons.

The general dimensions of the basin at Pola, determined by the magnitude of the floating dock, were as follow :—

| | Ft. | Ins. |
|---|---|---|
| Width inside the enclosing walls | 211 | 6 |
| Length | 311 | 6 |
| Depth from the top of the walls to the stringers in the floor of the dock | 17 | 1½ |
| Depth from the level of ordinary high water to the top of the stringers | 13 | 0 |
| Depth from the level of ordinary low water to the top of the stringers | 11 | 0 |

The maximum difference in the hydrostatic head, inside and outside the basin, existing during the progress of the construction of the basin, was 20 ft.

Detailed surveys and sections of the site were taken, so as to determine the precise contour of the rock, and of the mud overlying it, which varied in thickness from 2 ft. to 12 ft. As the rock was unfitted for holding, or even for receiving sheet piles, except when they happened to strike a fissure, it was decided not to use the ordinary clay-puddle coffer-dam.

The materials selected for the walls of the basin was Santorin béton, composed of Santorin earth,—a volcanic product from the Greek island of Santorino,—and lime paste, in the proportion of 7 to 2, forming the hydraulic mortar; to this was added 7 parts of broken stone, the mixture being made into a conical heap and tempered by exposure in the open air for from one day to three days, when it was ready for use. Of this béton extensive wharfs and moles had already been constructed at Trieste, Fiume, and Pola; and, as it had been found durable and efficient, was moderate in cost, and obtainable in any quantity, it was considered that no better material could be determined upon for the walls of the Pola basin. It might be mentioned that the largest blocks previously made were those at the mole of Fiume, which were 25 ft. in vertical depth, 22 ft. wide at the top, with a batter of 1 in 4 or 1 in 6, and 50 ft. long.

It was believed that, by adopting proper precautions, the mud which covered the rock bottom would form a suitable foundation for the walls of the basin, provided that a water-tight joint could be made at the bottom of the wall, for there could be no leakage or percolation through the béton, so long as it remained uncracked by unequal strains or settlements. It was, however, assumed that such cracks would occur, and that it would be necessary to provide for such a contingency. A wall of a plain rectangular section was decided upon, the thickness of which was determined with reference to the fact that the foundation consisted of greasy mud, lying at angles varying from 2° to 10°, which would render a slip possible. Joints were made across the wall, at intervals of from 40 ft. to 90 ft., in order to form weak places, which, being selected with reference to the nature of the bottom, would, in all probability, determine the location of any cracks that might occur.

It was ascertained by calculations, based upon the data afforded from a knowledge of the contour of the rock bed and the mud bottom, that no crack could exceed 6 in. as a maximum, and the ends of the blocks marked the localities where the settlements would probably take place. To check the passage of the water through the wall at these points, as well as to prevent the blocks from moving laterally upon one another, a rectangular post, 18 in. by 24 in., was inserted vertically in each of the joints, reaching from the upper surface of the block, through the mud, to the rock bottom below. These posts projected 12 in. into each block of béton. Subsequent experience proved that this device was thoroughly efficient, the largest crack, which had a maximum width of 5½ in., not admitting any water. The thickness of the walls varied from 15 ft. to 20 ft. and 26 ft. The floating dock entrance was placed on the north side, and was adapted for an iron caisson to close it. This entrance was 120 ft. wide in the clear, but the caisson measured 128 ft. along the top line. The pump well was situated in the south-west corner of the basin. Great care was taken to make the stage piles stand vertically, as they were to remain permanently in the walls. The vertical diagonal bracing between the piles was removed as the béton was filled in. The enclosing sheet piles were carefully squared, so as to obtain perfectly true faces, for the purpose of obtaining tight joints, and to give the béton walls, of which the sheet piles formed the moulds, a fair surface.

As was anticipated, the butt joints between the béton blocks were found to open, more or less, according to the character of the mud on which they stood, and the contour of the rock bed, but in no case did the timber-joints fail. After the maximum settlement had developed itself, the cracks were carefully cleaned out, and filled with masonry to the depth of 1 ft. from the face of the wall, and tubes or pipes were inserted in the wall for conveying away any slight leakage that might escape without washing away the fresh mortar. Where a crack or joint appeared open on the external side of the béton walls, a pad, secured to a plank or timber, was firmly braced against it, until it was tight enough to prevent the escape of fine mortar or cement. The openings or cracks were then filled with thin grout, injected through a tube, under a head of about 10 ft. above the wall.

The caisson for closing the opening to the basin was built by the Messrs. Rennie, of London, and was found to answer its purpose completely.

## A SUGGESTION FOR WARMING APARTMENTS.

WHEN the thermometer is at, or near to, freezing point, few persons of small income can contemplate an adjournment to bed with anything like resignation, because as coals, at least in London, are expensive, they cannot afford fires in their bedrooms in addition to those which are necessary in the parlour or kitchen. Though tolerably well fortified with blankets, we seldom enjoy going to bed from the beginning of November to the end of March. But how fares it with the lower and lowest classes during these five months?—

> "How shall their houseless heads and unfed sides,
> Their loop'd and window'd raggedness defend them
> From seasons such as these?"

Almost all bedrooms of modern date have fireplaces and large chimneys, which, except on state occasions, and during illness, are, in a large number of cases, never used. They serve, indeed, for ventilation, in some measure, during summer, but in the colder months constantly inundate the unhappy sleeper with an atmosphere of fog or frost, which descends, by reason of its greater specific gravity. Is the *ne plus ultra* of perfection yet attained in economising heat and coal, and yet retaining more comfort than we do in our sleeping and other rooms? It was only the other day that gas was invented; while the virtues of the Norwegian cooking-stove are even now known to few Englishmen; so we need not despair. Most of the systems of warming now in use unite in principle, viz., they more or less effectively warm up the air which a room *already contains*, but either destroy the oxygen, in the case of stoves without flues, or, like fire-places with chimneys, replace the heated air which escapes by a rush of cold from doors and windows.

Now, I think it would be more efficacious and wholesome to turn out all the cold air in a room by the direct introduction of *hot* in its normal or natural chemical condition, and believe that it would prove just as simple, and cheaper by far. Air, when heated, *invariably* ascends. By turning this fact to account, man may reduce at least one-half of his misery in winter.

If we heat the thick end of a long tobacco-pipe red hot, and blow through it upon a stick of sealing-wax, 1 in. distant from it, the wax will melt. If we heat it again as before, and, instead of blowing through it, hold it perpendicularly below the wax at the same distance, the same result will be produced by the natural current through it. Let us now apply the same principle to an ordinary gas-pipe 1 in. in diameter. If one end of the said pipe were heated in the fire, and the other end conveyed up the chimney or brick beside it into an upper room, there can be no doubt that the air which ascended through it would gradually make the upper part as hot as that which was in the fire; but the heated air discharged into the chamber above would have lost all its vital usefulness, from the oxygen being combined with the iron pipe, and it would also ignite the ceiling of that room in a short space of time; but, as the principle holds good at all minor degrees of temperature, we find an avenue of safety. At 212°, the boiling point of water, there is not the slightest danger of setting fire to your house when you are asleep; so, if the pipe, having its lower end out of doors, be conveyed through a large boiler, to form a reservoir of heat, it would not only warm rooms gradually, but would also renew their atmosphere with pure air in its normal or natural condition. The branches into different rooms should be fitted with a stop-cock at the end of each, of large size, to regulate or stop the current of air at will. There being no ventilator or chimney needed, the heated air would be forced onwards through the interstices of the doors, and render lobbies and passages comfortable. As the large boiler would be the only really expensive article required, in addition to the gas-pipes, and would be useful for baths and other domestic purposes, the money would be well and usefully expended. It is almost needless to say that, by this plan whole streets of contiguous houses might be cheaply warmed, just as they have long been lighted by gas; and to none would it prove a greater blessing than to the miserably poor.

M. H. P.

## ON WHAT FLOOR OF A CHURCH-TOWER SHOULD THE BELL-RINGERS BE PLACED?

IN reply to this query, certain respected friends will say, "On the ground floor; for where they occupy a stage above, and are out of sight, evil works are often carried on."

Now, I believe that the most able ringers of the present day are respectable, well-conducted, and trustworthy men. If, however, it can safely be said that disgraceful practices are carried on in any ringers' chamber, here is an effectual remedy. Let the clergyman appoint a trustworthy person as foreman, who shall be responsible for the good conduct of the ringers, and the enforcement of all the necessary rules.

Here and there a tower exists which is so constructed that the bells are properly rung from the pavement; but in other instances the ringers are placed above, and out of sight; while in numerous towers it would be utterly impossible to bring the ropes down so as to ring the bells in peal on the ground floor. This applies to all the finest peals of bells which I have surveyed in the metropolis, as well as to most of those in the country. I may add that, among the many edifices by Sir Christopher Wren, I cannot call to mind any church tower in which the ringers stand on the lower story.

In conclusion, I would observe that a very remarkable edifice, the "round" part of the Church of the Holy Sepulchre, Northampton, being under restoration, it has been found necessary to take down the old ringing-chamber in the tower, together with a partition, which blocked up the pointed arch at the west end of the church. But the question now arises,—"Where should the ringers and chimers be placed?"

My answer is, certainly not on the ground-floor; for where there is an *entrance* to the church through the lower story of a tower, as in the case now under consideration, if you place the bell-ringers there, you will necessarily lead the people to enter the sanctuary by some other way, to say nothing of other objections to such an arrangement.

I venture, then, to submit that as the position is admirably adapted for the purpose, a new floor should be substituted for that of the old ringing-chamber, the front to be left open to the church, thus forming an appropriate gallery or ringing-loft.

THOMAS WALESBY.

**Peace and Free Trade.**—A member of the Social Science Association has offered 10*l.* 10*s.* for the best essay on the subject, "How far is universal free trade a necessary condition of universal peace?" The essays must be sent in on or before May 1.

## BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE fourth annual general meeting of this Institution was held on Tuesday, the 28th ult., at the Office, 14, Bedford-row; Mr. Benjamin Hannen, the president for the ensuing year, taking the chair.

The attendance, which was numerous for a meeting of this character, was composed mainly of builders' clerks; amongst the chairman's direct supporters were Messrs. Thomas Stirling, Henry Earle, Matthew Hall, Marcus Newton, &c.

The Chairman, in moving the adoption of the report and balance-sheet, said,—You will have noticed that the increase of subscriptions in 1870 is but little over those received in 1869; but the fact that there is an increase in spite of the war on the Continent which has affected all charitable institutions, and of the depressed state of the building trade, is a very gratifying one. When once these causes are removed, we may hope that this institution will show a more marked improvement than in any preceding year. It is a subject of considerable gratification to me to see that your funded property also increases. With regard to the Asylum Fund, I notice that the rules state that the object of the institution is the relief of decayed builders' clerks, and the maintenance and education of their children. The name Asylum Fund seems to suggest something in the shape of almshouses, but upon this point the builders are more likely to have correct views than most societies, and they have come to the conclusion that pensions granted to their decayed members is the way to effect the greatest good with the money. To build almshouses for the poor costs as much as providing mansions for the rich; and after building they must be endowed, and the isolation of the inmates living in these small dwellings renders it a very questionable benefit to them. 20*l.* a year as a pension, enabling them to live with their friends, is a much greater boon.

Mr. H. T. Boyes, in seconding the resolution, thanked Mr. Hannen for his remarks about the Asylum Fund, which, he said, ought, perhaps, with more propriety, to be called the *Orphan* Fund, and explained that there was a rule that when this fund reached 1,000*l.*, a General Meeting should be held to consider its appropriation. A motion had been made about eighteen months ago that life presentations in one of the existing orphan asylums should be purchased in the names of the President or Trustees, and that by means of life insurances upon those names, the Institution should have perpetually the means of renewing such presentations. The cost of the first purchase would thus be the only outlay required, and he hoped still that this proposition might be entertained by the members of the Institution, and education afforded to the children of some of the pensioners.

Mr. Thos. Stirling said he hoped there would be another election of pensioners in November; and announced that Mr. John Waldram, of the firm of Messrs. Hill, Keddell, & Waldram, was willing to give two guineas to the successful candidate at this election, provided four other gentlemen would do the same.

The motion was then put to the meeting, and carried unanimously.

Mr. Alfred R. Smith proposed various alterations in the rules, so as to admit the widowed mothers of builders' clerks within the pale of eligible candidates for relief, remarking that one who had been entirely dependent on a son for support would be in as bad a position as a widow, and that every circumstance tended to show that the relief would not be required for so long a period as in the case of a widow, the majority of whom would be comparatively young.

Mr. Ward objected that it was entirely altering the objects and principles of the Institution, and that in its present youth it was taxed sufficiently to meet existing claims.

Considerable discussion took place, in which Messrs. Marcus Bourne Newton, Thos. F. Cooke, R. Ball, and H. J. Wheatley took part; several of the speakers expressing great sympathy with the objects of Mr. Smith's proposition, which were severally brought forward and negatived.

A cordial vote of thanks to Mr. Thos. Stirling, for the valuable assistance he had rendered to the society; and another to Mr. Hannen, for his conduct of the business of the meeting, brought it to a conclusion.

## THEATRICAL.

*St. James's Theatre.*—The reputation which Mr. Albery obtained by his capital little play "Two Roses," still on the stage, led many to wait with interest for the production of his new venture, though, as it now seems, his earlier work, "Two Thorns," at the St. James's Theatre; and although it may not be thought in all respects equal to that which has given so much pleasure to the town, we do not hesitate to say it will not diminish his reputation, but increase it. Admitting a certain amount of haziness and involvement in the plot, and a few trifling outrages of probability, the construction of some parts of the play is marvellously ingenious, and the writing throughout sharp and pointed. It has the advantage, too, of some admirable acting, we may say some very fine acting on the part especially of Mrs. Hermann Vezin, Mr. William Farren, and Mr. Henry Marston. The scenery, by Mr. W. Hann, is bright and appropriate: the last scene, a rose-covered cottage and grass-covered stage, is a home for a fairy. The piece can scarcely fail to have a long run.

*King's Cross Theatre.*—This little box of a house is decorated with more taste and delicacy than is usual now-a-days. The modelling of the ornaments is very good of its kind.

*Hanley.*—The new theatre has been opened, and is a great improvement on the former structure. It will seat about 2,500 persons, and on an emergency 3,000 may be accommodated within the walls. The auditorium is divided into dress boxes, upper boxes, pit and gallery. There is a refreshment-room on each tier, and at the sides of the stage are a green-room, seven dressing-rooms, band-room, property-room, scene-dock, wardrobe, lime-light room, &c. The boxes have a cloak-room for ladies, and there are also private boxes. The principal source of artificial light is a gaselier suspended from the ceiling. The building has been erected from the designs of Mr. T. Hinde, one of the original proprietors of the old theatre, under the supervision of the Borough Surveyor and a sub-committee of the Town Council. It is believed the whole of the interior could, in case of a panic, be cleared of occupants in three or four minutes. The street frontage is of red brick, with pilasters (surmounted with carved stone capitals) in white brick. The length of the front is 104 ft.; the depth of the pit is 50½ ft.; that of the stage 46 ft.

## INDIAN COLLEGE.

IN the House of Commons, Sir F. Goldsmid has called the attention of the House to the recent establishment, under the orders of the Secretary of State for India, of a college, to the students of which (as he asserted) were to be transferred the opportunities until lately afforded to young men possessing the attainments required (wherever they might have been educated) of entering the service of the Government of India as civil engineers. He moved the following resolution:—

"That in the opinion of this House young men qualified by character and attainments for admission into the service of the Government of India as civil engineers ought not to be excluded from such service by reason of their not having been educated at a Government college."

After some discussion, in which the Chancellor of the Exchequer and the Under Secretary for India took part, the motion was agreed to by a majority of 52 to 46, against the Government.

In reply to Mr. Dickinson, the Under Secretary for India, Mr. Grant Duff, said there would be no charge on the Indian revenues, because the fees of the college would be in excess of the expense. The cost would be 21,950*l.*, and the fees would amount to 22,500*l.*, which would leave a balance of 550*l.* to be paid to the Indian Government.

## "THE TENDER SUBJECT."

INFIRMARY, WORCESTER.

SIR,—The following is a list of the tenders delivered for alterations and additions to the Infirmary, Worcester. Messrs. Martin & Chamberlain, architects. Quantities supplied:—

| | | | Per-centage on Lowest. |
|---|---|---|---|
| Wood & Son | £4,397 | A | |
| Beard | 4,494 | B | 2·21 |
| Architects' estimate | 4,500 | C | 2·35 |
| Jeffrey & Fletcher | 4,630 | D | 5·25 |
| Jones | 4,720 | E | 7·38 |
| Welsh & Son | 4,900 | F | 11·69 |
| Lovatt | 4,900 | G | 11·63 |
| Horsley, Brothers | 4,934 | H | 12·22 |
| Bennett | 4,947 | I | 13·51 |
| Barnsley & Sons | 4,950 | K | 13·57 |
| Briggs & Sons | 4,990 | L | 13·59 |
| Espley | 5,075 | M | 16·69 |
| Thompson | 5,223 | N | 18·79 |
| Yates | 5,295 | O | 20·43 |
| Everal | 5,735 | P | 30·33 |

It is said, so intense is the competition between the river steamboats on the American rivers, that explosions are of frequent occurrence. In their furious endeavours to secure the traffic, they often bring about their sudden destruction. That, sir, I fear is exactly what the builders of the present day are doing, in their frantic efforts to do the meagre amount of building at present doing. Here is a deplorable example of this terrible rivalry. We can excuse a builder's desire to secure a 40,000*l.* contract, like the foundations of the Law Courts, the bulk of which consists of labour; but how can we account for fourteen of the most respectable Midland builders tearing each other to pieces over a paltry 4,500*l.* contract, consisting principally of materials. One builder may contrive to get 30 per cent. more work out of men than another calculates upon getting, but it is impossible for one to buy his raw materials 30 per cent. cheaper than another. The raw materials themselves for this contract amount to close upon 3,000*l.*: consequently the lowest must either get his men for half the wages the highest pays, or the former must get double the amount of work out of each man that the latter can, or calculates upon getting. We have seen during the late war that one German soldier is quite equal to two French ones, but have yet to learn that one English operative is quite equal to two English operatives. Consequently, if we do not allow that the lowest tenderer is wilfully wasting his substance, we are driven to the conclusion that P. pays cent. per cent. higher wages than A. does. The average wages in the locality is 6d. per hour; but let us suppose the one nearest the mean pays the mean or average wages, which is I.: then we find that A. pays at the rate of 5·20d. per hour, whilst P. pays at the rate of 10·40d. per hour.

I think I may venture at this point to leave you to draw your own conclusions.

GARGOYLE.

## FIRE AND TRAP DOORS.

SIR,—The fires that have occurred during the last few days, causing such a melancholy loss of life, lead me to ask you for a corner for the following hints. The trap-doors are at present placed on the upper landings of stairs leading on to the roofs of houses; and, when a fire takes place, if an attempt is made to escape by the roof, the opening of the trap-door acts as a funnel, and often prevents escape. I have had them placed in one of the rooms *adjoining* the *upper landing*, so that by closing the room-door time is often given for escape. Another precaution, frequently neglected, would have a good effect, especially in large establishments, factories, &c.: I mean that of occasionally calling the occupants together, and pointing out what should be done if a fire happened *at any given part of the premises*,—as, of course, all is confusion on such occasions.

E. O. SYMONS.

## *RE* METROPOLITAN RAILWAY COMPANY'S SURPLUS LANDS UTILISATION SCHEMES.

SIR,—The competitors are anxiously waiting the decision of the Board, which has now been so many months pending.

ONE WHO WANTS TO KNOW.

## SWANSEA LAW COURTS.

THE Corporation of Swansea has just completed important alterations in both the Crown and Nisi Prius courts, at a cost of upwards of 3,000*l.* An entire suite of new offices, judges' rooms, barristers' rooms, &c., has been added, and the whole of the internal fittings rearranged, whilst both courts have been ventilated and warmed. The architect was Mr. C. J. Phipps, of London; the contractor, Mr. Everat, of Malvern.

## ROYAL ARCHITECTURAL MUSEUM.

SIR,—The appeal just made to free the Architectural Museum from debt has met with a most hearty response.

The special fund now amounts to above 1,200*l.*; and we thus secure the liberal but conditional offers of Sir William Tite and others. The cordial support received, as well from the profession as from friends outside, will enable the council to carry out a work they have for years been unable to accomplish, viz., the publication of a new and comprehensive catalogue of their immense and unequalled collection, now still more valuable on account of the ravages during the late Continental war, and from the many additions in various styles lately contributed by the Royal Academy, Royal Institute of British Architects, the South Kensington Museum, the Royal Asiatic Society, and private individuals. Unencumbered with the burden of debt upon the building, we can now carry out many valuable suggestions made to us from time to time.

It must, however, be remembered, that the

object of the Museum is not to attract a crowd of mere sight-seers. Though not situated in a conspicuous locality, it is so conveniently placed that all may study in it who care to do so.

It is only those who know the difficulty of securing a site in London who can realise the trouble the council had in finding one so easily accessible as our present one.

JOSEPH CLARKE, Hon. Sec.

## VALUE OF LAND.

*Loughborough.*—At the sale by auction, under an order of the Charity Commissioners for England and Wales, by Mr. S. Jackson, the property situate on the Forest-road, Loughborough, realised as follows:—Lot 1, 3a. 1r. 37p., 445*l.*; lot 2, 1a. 0r. 38p., 176*l.*; lot 3, 3a. 2r. 13p., 320*l.*; lot 4, 4a. 0r. 10p., 440*l.* The total, 24a. 2r. 17p., brought 2,414*l.*

*Near Wigton.*—Messrs. R. Dugdale & Son have sold the two estates of Scales and Brocklebank, late the property of Mr. Beaty, deceased. The Scales estate, which contains about 67 acres, was knocked down at 3,700*l.* The Brocklebank estate, containing about 130 acres, was knocked down for 1,660*l.*

*Louth.*—Messrs. Mason & Son have sold four lots of land situate in the parish of Theddlethorpe. Lot 1, 2a. 0r. 23p. of pasture land, was bought by Mr. D. Briggs for 300*l.*; lot 2, 4a. 0r. 10p., 370*l.*, Mr. Taylor; lot 3, 4a. 2r. 21p., 450*l.*, Mr. P. Wilson; lot 4, 1a. 3r. 8p., 140*l.*, Mr. Baxter.

## BUILDING FRONTAGES, QUEEN VICTORIA-STREET.

SIR,—Recently some of your correspondents have been remarking upon the late great failure of offering the vacant lands on the Holborn Viaduct by auction, and upon the cause of that failure, namely, the excessive prices demanded. I think their strictures might be extended to the state of Queen Victoria-street, especially that part next the Mansion House. There was an auction sale of a few lots of ground there last spring, and two or three small plots were disposed of; but the largest plot, that fronting in Walbrook and Queen Victoria-street, was bought in, I believe, for the same reason as above stated. There was a very large attendance of buyers, but no one would give the money reserved. No doubt, in such a position the land is enormously valuable, but it seems to be overlooked that it lies back from the best thoroughfare. The most projecting corner of this large plot is about 50 ft. set back from the line of the Poultry, "produced" to the front of the Mansion House. True, that it has a commanding frontage to Queen Victoria-street, but that, at present, is a raw new thoroughfare, and not so highly valuable as Cornhill or the old established and beaten main roads of the City.

If well managed, Queen Victoria-street is likely to be a grand success and will *pay for itself*, which is a remarkable novelty in public improvements; but if "muddled" it may prove as great a horror as the howling wilderness of Victoria-street, Westminster.

The plot was bought in at the rate of 1,250,000*l.* per acre. BAYSWATER.

## POST-OFFICE PROGRESS.

THERE has been no year probably since the introduction of the penny post in which a larger increase will be marked in the postal deliveries than the year 1870, and the current year 1871, the last more especially, as only three months of the half-penny post-card and circular, and the half-penny newspaper postage, come into the statistics for 1870. It is unfortunate that certain important statistics, published by Government departments, do not appear until so long after the periods to which they are made up as to diminish greatly the value and interest that would otherwise attach to them. It is so with the railway returns published by the Board of Trade, with the trade and navigation returns, of which the statement for January, 1871, has appeared, but not the statement for December, 1870; it is so with the annual report of the Postmaster-General—the sixteenth—just published, which embraces the statistics of the Post-office for 1869.

For comparative purposes, to show the growth of Post-office business, it is necessary to take much earlier returns than those quoted in the new report, which only goes back for comparison to 1860. In 1839 the first general reduction of postage came into operation. At that time Members of Parliament enjoyed, and took large advantage of, the privilege of franking letters, by which themselves and others were able to have their letters carried and delivered post free. In that year, 1839, upwards of 6½ millions of franked letters thus passed through the Post-office. The total number of letters delivered in that year, including franks, was 82,907,572. In 1840 the number was 168,768,344, being an increase of 122½ per cent. In 1850 the number was 347,069,071. In 1869 the number was 831,914,000. In 1854 only 400,000 book packets, exclusive of newspapers, passed through the Post-office; the number of newspapers delivered, including re-transmissions, was about 71,000,000. The number of book-packets, newspapers, and pattern-packets delivered in 1869 was 108,668,000. In 1846 there were 1,280 money-order offices in the United Kingdom; in 1856 there were 1,935; in 1869 there were 4,061, of which there were 3,066 in England and Wales, 453 in Scotland, and 542 in Ireland. The amount transmitted through the Post-office by money orders in 1855 was 11,009,279*l.*, and in 1869, 19,395,635*l.*, of which 584,067*l.* was for money orders issued in the United Kingdom for payment abroad, or for orders issued abroad for payment in the United Kingdom. The gross revenue of the Post-office, the cost of management, and the net revenue, are as below for the years quoted:—

| | Gross Revenue. | Cost of Management. | Net Revenue. |
|---|---|---|---|
| 1839 ... | £2,346,278 | £686,768 | £1,659,509 |
| 1840 ... | 2,390,763 | 756,999 | 1,633,764 |
| 1841* . | 1,359,486 | 858,677 | 500,789 |
| 1850 ... | 2,165,349 | 1,324,561 | 840,787 |
| 1860 ... | 3,531,165 | 2,831,137 | 700,028 |
| 1869 ... | 4,764,575 | 3,459,227 | 1,305,348 |

The staff-officers, clerks, postmasters, sorters, guards, letter-carriers, and messengers, &c., numbered 22,547 in 1855, and 25,192 in 1860, and 26,910 in 1869, exclusive of the telegraph department. In 1869 there were 1,085,785 depositors in Post-office Savings Banks, to whom a balance was due of 13,524,209*l.*, being an increase of 15·9 per cent. upon the preceding year. The average amount of deposit was 12*l.* 9*s.* 1¼*d.* The total number of depositors in the Post-office Savings Banks and the old Savings Banks was 2,464,510 in 1869, or 1 in 12 persons of the population. The policies effected with the Government for life assurance, at the close of 1869, were 2,168, for 164,397*l.*, being an average of 75*l.* 16*s.* 6*d.* to each insurer. The immediate annuities taken were 1,226 for 25,600*l.*, and the deferred annuities 193, for 3,789*l.*

* From this year there was a general progressive increase under each of the heads.

## GAS FLAME DENUDED OF ITS IMPURITIES.

SIR,—My attention having been called by a friend to a letter under this head, in your issue of the 21st January, may I venture to suggest one or two queries which occur to me as a practical man. How can water be applied to the *gas flame* itself? Must it not either be applied to the *gas*? or to the *products of combustion*? If the former, no previous experience, of which I have had some, informs me that the quality of the gas is in any way improved thereby; if the latter, we have already distinct data to guide us, as it is well known that the *products* are carbonic acid gas: and in the case of impurity existing, a certain per-centage of sulphurous acid gas, 1 cubic foot of gas producing about 1 cubic foot of carbonic acid gas, which at the ordinary pressure of the atmosphere would require 1 cubic foot of water, or thereabouts, to absorb it (a very ordinary furnace will consume 5 ft. per hour of ordinary gas,—thus requiring 5 cubic feet of water to absorb the products of combustion). A very short calculation will show the large volume of water required,—30 gallons per hour for each burner.

The letter does not clearly state whether the principle is intended to apply to a gas stove only, which might perhaps be inferred, or to any ordinary burner, and contains no allusion as to the method of disposing of the water when done with. Feeling, however, considerable interest on the subject, I should be obliged by the insertion of this letter. A SURVEYOR.

## SMITHFIELD DRINKING FOUNTAIN.

SIR,—My design is accompanied by an estimate from a good carver to complete the whole thing for 1,200*l.*, including the figures, which your critic suggests would nearly cost all the money. In marble or bronze they might: in hard stone they may be done well as estimated.

H. H. VALE.

## THE NEW STAMP ACT.

THE following extracts from the Stamp Act 33 and 34 Vict., 1870, need our readers' attention:—

"*As to Appraisements.*

Every appraiser by whom an appraisement or valuation is made shall, within fourteen days after the making thereof, write out the same in words and figures, showing the full amount thereof, upon duly stamped material; and if he neglects or omits so to do, or in any other manner delivers out or states the amount of any such appraisement or valuation, shall forfeit the sum of fifty pounds.

Any person who receives from any appraiser, or pays for the making of any appraisement or valuation, unless the same be written out and stamped as aforesaid, shall forfeit the sum of twenty pounds."

"*As to the Certificate of Registration of a Design.*

The duty of five pounds upon the certificate of the registration of a design is to be denoted by a stamp, to be specially appropriated for expressing and denoting the said duty."

"*Appraisement or Valuation.*

Appraisement or valuation of any property, or of any interest therein, or of the annual value thereof, or of any dilapidations, or of any repairs wanted, or of the materials and labour used or to be used in any building, or of any artificer's work whatsoever.

| | | | | |
|---|---|---|---|---|
| Where the amount of the appraisement or valuation does not exceed £5 | | | £0 | 3 |
| Exceeds £5, and does not exceed | £10 | | 0 | 6 |
| ,, 10 | ,, | 20 | 0 | 1 | 0 |
| ,, 20 | ,, | 30 | 0 | 1 | 6 |
| ,, 30 | ,, | 40 | 0 | 2 | 0 |
| ,, 40 | ,, | 50 | 0 | 2 | 6 |
| ,, 50 | ,, | 100 | 0 | 5 | 0 |
| ,, 100 | ,, | 200 | 0 | 10 | 0 |
| ,, 200 | ,, | 500 | 0 | 15 | 0 |
| ,, 500 | | | 1 | 0 | 0" |

"*Exemptions.*

Appraisement or valuation made for, and for the information of, one party only, and not being in any manner obligatory as between parties, either by agreement or operation of law. Appraisement or valuation made in pursuance of the order of any Court of Admiralty or Vice-Admiralty, or of any Court of Appeal, from any sentence, adjudication, or judgment, of any Court of Admiralty or Vice-Admiralty. Appraisement or valuation of any property made for the purpose of ascertaining the legacy or succession duty payable in respect thereof."

## ORDNANCE SURVEY.

SIR,—*Chambers's Journal* for the 7th of January, 1871, contains an article upon this subject, showing that the survey of England and Wales is now completed, scale 1 in. to a mile, having been commenced on the 1st of January, 1800. It was finished on the 1st of January, 1871. During these seventy years various changes have occurred, rendering alterations in the maps necessary. For instance, in the map of North Devon, surveyed in 1809, the Barnstaple and Ilfracombe turnpike road, which was constructed subsequently, is not, of course, contained in the map. The notice does not refer to the parish maps now being constructed under the superintendence of Sir Henry James, and which will be very valuable, especially if old buildings and their sites, as well as bye-roads and pathways, are marked in it, as they should be. As a pedestrian, I have received much assistance from the county ordnance maps, which contain notices of ancient buildings and cromlechs, &c. CAB. COOKE.

## FALLING CORNICES.

SIR,—As the father of the unfortunate gentleman who lost his life by the falling of a heavy cornice from a building in Fenchurch-street a few weeks since, may I request of any of your subscribers kindly to inform me in your next number of the date of a similar accident which occurred some years ago in Wood-street. I do not refer to one which took place in January, 1865, in Great Winchester-street, where one of the workmen was killed, and several injured.

As this is the third accident of late years through the falling of cornices, should it not be the duty of some of the public officers to keep an eye on such dangerous projections while building, and thus prevent the ruin and misery in which carelessness or accident may involve the passengers in our crowded thoroughfares?

2, *Blandford-street, W.* JOHN RAYLE.

## AMERICAN INSTITUTE OF ARCHITECTS.

THE report of the proceedings of the Fourth Annual Convention of the American Institute of Architects* contains the opening address by Mr. Thos. U. Walter, the closing address by Dr. Furness, and reports from various chapters, which show that considerable activity prevails, and that the profession in the United States includes many men of ability. We shall be able hereafter to give a fuller account of the "Proceedings."

The Institute now appears to consist of branches, or "chapters," at New York, Philadelphia, Chicago, Cincinnati, Boston, and Baltimore.

The English honorary members in the printed list are Mr. Burges, Professor Donaldson, Mr. Godwin, Mr. Beresford Hope, Mr. Layard, Mr. J. H. Parker, Mr. J. A. Picton, Mr. Ruskin, Professor G. G. Scott, Mr. G. E. Street, Mr. Waring, Sir Digby Wyatt, and Mr. T. H. Wyatt.

* Proceedings of the Fourth Annual Convention, held in Philadelphia, November 8th and 9th, 1870. Westers & Co., Park-row, New York. 1871.

## DEATH FROM FAULTY CONSTRUCTION.

DURING the last five or six weeks Mr. Hookham, of Deal, has been building a house in Lower-street, Deal, and the building was approaching completion, when on Wednesday, the 1st, just before the dinner-hour, the whole of the fabric suddenly fell to the ground with a loud crash, and when the dust had somewhat cleared away, five persons were removed out of the ruins, viz., Mr. John Hookham, the builder, who was taken out dead; his son, Walter Hookham, seriously injured and leg broken so badly as to need immediate amputation; Epsley, a bricklayer who had his leg also broken; and two carpenters named Aaron Barton and Henry Baker, seriously bruised and shaken. At the inquest on the body of the deceased held on the 2nd, before the borough coroner at Deal, Mr. G. Mercer, the jury returned a verdict to the effect "That deceased came by his death through the

falling of the house which he was building of too flimsy and faulty a construction."

They recorded their opinion that none but a certified builder should be allowed to erect any buildings in the borough, and that in all cases a competent architect should supervise the construction. They directed the coroner to bring the matter before the local authorities at their next meeting; and the coroner intimated his perfect concurrence in the recommendation, and promised to comply with their request.

## PROPOSED DECORATION OF THE COUNCIL CHAMBER, LIVERPOOL.

THE confirmation of the finance and estate committee's recommendation that the tender of Messrs. Cottier & Co., for the decoration of the council-chamber and luncheon-room, for the sum of 600*l.*, be accepted, has been considered by the town council.

Mr. Picton seconded the motion. The sub-committee, he said, were directed to get tenders from three persons, and it was thought desirable to obtain native talent if they could. Messrs. Cottier & Co., of London, and Messrs. Alexander White & Son, of Liverpool, were applied to for designs, and afterwards Messrs. Jeffery & Co., of Compton House, applied to send in designs. They said they had artistic talent of the highest order, and they were therefore allowed to tender. The result was then before the council. The divisions upon the different designs resulted in Messrs. Cottier's being adopted by five votes to one. Some persons objected on account of the darkness of the tone, but it was sought to give as much reflected surface as possible by the free use of gilding.

Mr. R. R. Minton moved that the tender of Messrs. J. & W. Jeffery & Co., for 580*l.*, be accepted, in place of that of Messrs. Cottier & Co., for 600*l.*

This amendment was carried by a majority of one.

Mr. Melly moved that the question be deferred for another six months, for the reason that the ratepayers at this moment were not able to bear the expense. This was carried by twenty-six votes to fifteen.

Mr. Fairhurst moved that Messrs. White's designs be accepted; fourteen voted for, and twenty-eight against it. Mr. Melly's amendment having become the substantive motion, it was agreed to, so that the subject of the decorations is now postponed for six months.

## CHURCH-BUILDING NEWS.

*Reigate.*—The church of St. Luke, South Park, Reigate, has been consecrated. The style is Gothic, of the fourteenth century. The church contains nave with south aisle, chancel with south aisle, and vestry, with organ-chamber over; but the north side and west end are temporarily enclosed with timber framing, plastered and weather-tiled, in contemplation of future enlargement. The walls are built of local firestone, with Bath stone dressings, and the roofs covered with brown tiles, finished with ornamental red crestings. Internally, the walls are stuccoed, and have Bath stone dressings. The roofs are constructed with Baltic timber exposed to sight, those over nave, chancel, and organ-chamber being close boarded on the rafters, and those to aisles plastered between the rafters. There is a temporary porch at the north entrance, and also a small bellcot, with bell at the west end. The seats, the whole of which will be free and unappropriated, are low open benches of red pine, stained and varnished, and will accommodate 254 adults and forty-eight children. The chancel sittings are of pitch pine, varnished, and will seat eighteen choristers; the reading-desks are also of pitch pine. The floors are of wood under the seats, and the passages in the nave and aisle are of plain red paving tiles, the paving in chancel being in Godwin's tiles, both glazed and unglazed, of various colours, laid in patterns. The communion-table, which is of walnut wood, stands on a raised platform, and there is a Caen stone credence on the north side of it. These and the carved oak pulpit, organ, lectern, font, candle corona, needle-work altar-cloth, and other works, are all special gifts. The lighting is done by candles, the standards or brackets to pulpit, desks, lectern, and chancel seats being of polished brass; but in the nave they are only of iron, of an inexpensive character, for temporary use. The church is heated by hot-water pipes under iron gratings. The cost of the building, including sittings, is about 2,500*l.* Mr. John Lees, of Reigate, was the architect; and the builder, Mr. W. Carruthers, also of Reigate, who commenced the works about the middle of April, 1870.

*Gunwalloe.*—The restoration of Gunwalloe Church, says the *Cornish Telegraph*, is now approaching completion. The early roof discovered by Mr. Sedding, in examining the church, has been copied in the new work. So far the restoration has, through the scarcity of funds, been rigidly confined to the necessary repairs to the building.

*Heanor.*—The Church of St. John the Evangelist, Aldercar, parish of Heanor, has been consecrated and opened. The church is in the Gothic style of architecture, and has a spire near the east end, with one bell. The length of the edifice, inside, is 70 ft.; breadth, 24 ft.; and it is calculated to seat 250 persons. It has been built of Mansfield stone, by Messrs. Fisher, of Mansfield; Messrs. Stevens & Robinson, of Derby, being the architects; and was fitted up for gas by Messrs. Shaw, of Riddings. The church is in the parish of Heanor, but in the extreme north-eastern portion of it, so as to accommodate as well the inhabitants of the outlying districts of Codnor and Ironville. There is attached to it a burying-ground, part of which only has been consecrated, the unconsecrated portion being at the disposal of Dissenters. The total cost has been calculated at about 1,500*l.*

*North Benfleet.*—The ancient church of North Benfleet has been reopened, after undergoing restoration. The cost has been about 1,000*l.*, nearly the whole of which has been defrayed by the rector. The architect was Mr. G. E. Street, and the builder Mr. E. Saunders, of Maldon.

*Tamworth.*—The parish church, which has been partially restored and reseated, has been re-opened for divine service. This church dates back to the time of the Normans, and is probably the third erection on the site. The Norman parts remaining are the north and south walls of the central tower, a door and window on the south side of the chancel, and the wall eastward of them below the string-course. The main part of the present fabric is of the fourteenth century. The works recently executed have been made under the direction of Mr. W. Butterworth, architect; the contractor being Mr. Wood, of Derby, and have been limited to the interior, with the exception of rebuilding the south door of the nave, and south wall of the vestry. The pews on the ground floor have been replaced by open seats; the west gallery and portions of the north and south galleries have been removed; the large window re-opened and glazed; and the plaster and whitewash removed from the walls and pillars. An apparatus has also been fixed for heating the church. The organ (the principal parts 200 years old), has been reconstructed. The contracts for the restoration amounted to 3,310*l.*, and the extras to 520*l.*, making a total of 3,830*l.* Two of the windows have been reconstructed and filled with stained glass, the east window (representing the twelve Apostles), as a testimonial from the parishioners and others to the late vicar, the Rev. Dr. Millar (now vicar of Cirencester), and a window in the south transept to the memory of Mr. John Harding, formerly of Bonehill, in this parish. It represents the "Adoration" of the infant Christ.

## DISSENTING CHURCH-BUILDING NEWS.

*Dewsbury.*—Trinity Congregational Church, Dewsbury, has been opened for divine service. The low ground on which it is situated detracts somewhat from its appearance. The basement floor contains the schoolroom, 50 ft. by 44½ ft.; lecture-room, 30 ft. by 22 ft.; infants' class-room, 24 ft. by 14 ft.; with four smaller class-rooms and kitchen. There are separate yards on each side of the building for boys and girls. These are approached from the Halifax-road by a flight of stone steps and from the Wellington-road by a side street. There are four separate outer entrances to this floor, two being provided through side lobbies to the schoolroom, the other two being for the class and lecture rooms. There are also two separate communications by staircases to the ground-floor and gallery, and a minister's staircase to the vestries. Internally the ground-floor consists of a large vestry, 29 ft. by 14½ ft., and a minister's vestry, 14½ ft. by 11 ft., with lavatories, &c.; also the body of the church, which is 87 ft. by 50 ft., with two side wings containing the entrance vestibules and staircases to galleries and schools. The approaches to this floor are three in number, the two principal entrances being from the Wellington-road, by flights of stone steps to the vestibules, and the other from Halifax-road by a level landing to the vestries, &c. A gallery is continued round the entire church, supported on ornamental cast-iron columns, the front being divided into compartments by pilasters, and filled in with panels of ornamental perforated iron-work on scarlet ground. The body of the church and the gallery will afford sitting accommodation for 1,000 persons. The seats have shaped stall-ends and leaning backs, and the whole of this and other woodwork in the church is of red deal, stained and varnished. There is, instead of a pulpit, an elevated platform, with staircase on each side, surrounded with ornamental iron balusters supporting a mahogany handrail. The ceiling of the church forms a semi-ellipse, being 37 ft. from the floor in the centre, and divided longitudinally by projecting panelled and moulded ribs into eight bays. These again are sub-divided laterally by five similar moulded ribs, making in all forty compartments, each of which is panelled and enriched at the angles. The curve springs from a moulded and enriched cornice, through which the projecting ribs pass to a distance of 4 ft. down the wall, and terminate on moulded and foliated pendants. The style of the architecture is Italian. The principal front is towards Wellington-road. The central portion projects from the main wall, and is surmounted by a pedimental cornice. The main feature in this front is a triple-lighted window, divided by Corinthian columns, supporting the arched and canopied head of the centre light, which is 25 ft. high and 8 ft. in width. The two side lights are square-headed, and the space below the cills is filled in with ornamental balustrading. On each side of this central portion, and recessed from it, are two other windows of similar proportions, but varied design, and over them runs the main cornice, crowned by perforated ornamental stone balustrading, finished at the angles with panelled pedestals supporting pointed urn terminals. On either side, and flanking this main portion of the front, are the side wings, containing the entrance, vestibules, and staircases to school and gallery. The whole of this front and the wings are constructed of tooled ashlar, from the neighbourhood of Huddersfield, and the remaining external portions of the building are faced with pitched Elland Edge wallstones, with dressings of Huddersfield stone. The church windows are continued in one length through the gallery. The Halifax and Wellington road frontages have boundary walls, surmounted with ornamental iron railings, with gates of similar design at each of the three entrances. The cost of the entire building, including fittings, &c., is about 8,000*l.* Messrs. John Kirk & Sons, of Huddersfield and Dewsbury, were the architects, under whose superintendence the works have been carried out. The foundation stones of three new buildings (two places of worship and a school), have been publicly laid here. One of these is a chapel for the Baptist body. The structure is Gothic in style, and will comprise nave, vestries, aisles, tower, and spire. The cost is estimated at 3,000*l.*, two-thirds of which is subscribed. The second stone-laying was at Ravensthorpe. The building forms a set of schools, which are to belong to St. Saviour's Church. They will comprise large room, 52 ft. by 20 ft.; infants' school-room; 35 ft. by 20 ft.; class-rooms, vestibules, &c. The style is to be Gothic simply treated, and in keeping with that of the church. The cost is set down at 1,100*l.* The third ceremony was that of laying the first stone of a chapel at Batley Carr, for the Wesleyan Methodists. The building will be Italian in style, and the cost is estimated at 2,500*l.*

## SCHOOL-BUILDING NEWS.

*Leicester.*—The third school belonging to this district is now completed. The new school is situated in Chester-street, under the shadow of the church, to which building it has been made to harmonise both in design and material. It is Early English in design, and is built of Mountsorrel granite, relieved by red brick—moulded and plain—and by white stone dressings. It contains a large room, with high-pitched roof, stencilled between the timbers, and a convenient class-room for younger children. Mr. Joseph

Goddard was the architect employed. This is the third Church day-school erected in St. Matthew's district of Leicester (two of these schools having been built within the last three years) with ample accommodation for from 1,000 to 1,200 children.

*Sittingbourne.*—At a meeting of the committee appointed to take the necessary preliminary steps for the erection of new national schools for the district of Holy Trinity, Sittingbourne, about a dozen tenders were opened, but it was resolved that no tender should be accepted until the next meeting. About 900*l.* have already been promised in aid of the movement. The site for the schools, valued at 250*l.*, will be given by the Rev. G. S. Simpson and Mr. Percy Simpson.

*Elmsett.*—A new school recently erected in this place has been formally opened. The school is situated in the centre of the village, on part of the rectory grounds. The architect was Mr. Barnes, of Ipswich; and the builder, Mr. Welham, of Hintlesham. A residence for the teacher is attached.

*Henley.*—The Poor-Law Board has sanctioned the building of schools and dormitories at the Henley Union for 100 children, with residences for the master and mistress. Plans have been prepared by Mr. F. Haslam, and it is expected that tenders will be invited shortly.

*Leek.*—A boys' new school for the schools connected with St. Luke's Church, which were erected about twenty-five years ago, is about to be built. An eligible site in Queen-street was purchased, at a cost of about 180*l.*; the contract for the building is upwards of 700*l.*, and the cost of fittings, heating apparatus, and other extras, raises the total estimated expenditure to about 1,100*l.* The new school, the stone of which has been laid, will be a one-story building. It will comprise the school-room, a class room, front and back porches, a stokery for the heating apparatus, and apparatus for tea meetings, lavatory, &c. The conveniences and other out-offices will be placed away from the main building in one corner of the playground, which will have an area of about 650 square yards. The inside dimensions of the school-room will be—length, 60 ft.; width, 26 ft.; height at eaves, 14 ft.; height in centre, 23 ft. All the external walls will be hollow and of red-pressed bricks. The walls inside are faced with red and black bricks in pattern. The school-room will be lighted by six 2-light windows on the side, two at the back, and a large 3-light window in one gable end, and a 4-light in the other; these windows having transomes and cill-strings of stone, and plain stone cuspings in the recessed arched heads. There will be, in addition, two circular traceried lights in gables in the roof on the west side. All the woodwork in the interior will be exposed and wrought, and stained and varnished. The buildings will be warmed by the warm-air apparatus of Messrs. Haden, of Trowbridge. The architect is Mr. Sugden, under whose direction Messrs. Nadin, Matthews, & Johnson, of Leek, will execute the work. The new building will accommodate 222 boys. The present school will be converted into an infants' school and class-room. In order to secure the Government grant, which would probably have been about 150*l.*, the committee would have had materially to narrow the width of the building as at present proposed, and render it much less suitable for evening meetings, entertainments, &c. After deliberation, they determined that it would be advisable to adhere to their plan, although by so doing they lost the Government grant.

*Ravensthorpe* (*Dewsbury*).—On Shrove-Tuesday the foundation-stone of a building to be used as day and Sunday schools, in connexion with St. Saviour's Church, Ravensthorpe, was laid. The building, which will have its principal entrance to Church-street, will be in the form of the letter T, and will contain a schoolroom, 52 ft. 6 in. by 30 ft.; an infants' school-room, 35 ft. by 20 ft.; a class-room, 16 ft. by 14 ft.; together with vestibules and passages, and separate entrance on each side. There will be large playgrounds on either side for boys, girls, and infants, all of which places will be approached from Church-street. The principal school-room is to be 16 ft. high. The roof-bindings will be dressed and chamfered, and partly exposed to view, and the ceiling divided into five compartments by four of these bindings, which will be stained and varnished, and supported on moulded and carved stone corbels. The ceiling of the infants' school-room will be the same height, with partially exposed roofing similar to the principal school-room, but divided into four compartments. The whole of the internal woodwork is to be of red deal, stained and varnished. The style of the architecture will be Gothic, simply treated. The principal feature in the front of the structure will be a central gable, containing a triple-lighted window, and surmounted by a turret. The entrances are to be at the back of the principal wing of the building, one of which will enter through a triangular porch into the boys' school and class-room, and the other into the girls' and infants' school-room. The building will be constructed of hammer-dressed Elland Edge wall stone on the outer face, and tooled local ashlar dressings, and it has been so arranged that it may at any future time be conveniently enlarged by the addition of another wing, 52 ft. 6 in. long and 20 ft. wide. The various rooms will be warmed by means of gill-stoves placed beneath the floor, and the whole will be lighted and ventilated on approved principles. The designs have been prepared by Messrs. John Kirk & Sons, of Huddersfield and Dewsbury, architects, under whose superintendence the works are being carried out. The cost of the structure will be about 1,100*l.*

*Halsted.*—The first stone of a new school has been laid here.

## Books Received.

THE current number of the *Art-Journal* (a very interesting one) says,—"The parish church of the pleasant and sequestered Surrey village, Chaldon, has recently been under repair. During the operations, the workmen engaged in cleaning the plastered walls discovered, at the western end of the edifice, signs of an ancient painting, which at length developed itself into a large fresco,* 10 ft. in height, and about 18 ft. in breadth. The subjects represented are souls in purgatory, their descent into it, their deliverance from it, and their reception into heaven, each being divided from the other by horizontal bands of geometrical pattern. The date of the work has been fixed by some members of the Archæological Society to be of the eleventh century, or early in the twelfth; and it is stated that the Society proposes to give some account of it in their next publication."——"Penny Statutes for the People. Kent & Co., Paternoster-row. No. 1. Married Women's Property Act, 1870. No. 2. The Pedlars' Act, 1870." As "ignorance of the law excuseth no man," there is much need for penny statutes for the people. This, therefore, is a good idea, and it is to be hoped will be well carried out. The Contagious Diseases Act, the Truck Act, the Vaccination Act, and such-like, ought to be widely distributed in a cheap and popular form, such as this. The series is edited by Alsagar Hay Hill, Barrister-at-Law, and annotated up to date by a staff of legal writers.

## Miscellanea.

**Barton's Patent Recording Telegraph.**—This consists of two plain revolving dials, each having a double groove at the rim to admit of an endless cord or rope, also a handle and a finger or indicator; and these are connected by an endless band of steel wire rope or any other fitting material. Upon this endless band or rope are fixed hanging swivels or holders, into which any kind of message written on ordinary paper or any other material, or a sealed missive if necessary is inserted. This done, the sender, A, simply turns the revolving dial until a small bell above the same gives the alarm, which by doing so announces that A's message has reached the receiver, B. Should B at the other end wish to send an answer back to A, he proceeds in the same way as A did at starting, the arrival of B's message to A being similarly announced by the ringing of a bell. If preferred, the messages can be sent from one department or office to another through tubes. If not thought desirable to send written messages, numerals or letters of the alphabet can be used instead, each numeral or letter of the alphabet representing some prearranged order or message for the day. If preferred, previously prepared messages—before the duties of the day commence—can be slipped in spaces around the dials instead of using numerals or alphabetical signs. Other applications of a similar apparatus are suggested.

* We are obliged to repeat, what we have often said, that the Mediæval wall paintings found in our churches are not necessarily *fresco* work.

**The Wellington Monument for St. Paul's.**—Last week, some further correspondence was published on the subject of the Wellington Monument in St. Paul's. At the time we last spoke of this matter, a letter was sent to Mr. A. Stevens, from the solicitor to the Department, who was instructed to take the necessary measures to enforce the rights of the Crown. Thereupon Mr. Stevens wrote an appeal to Mr. Gladstone, stating that the First Commissioner contemplated "a great injustice," and that the proposed course would prejudice the result as a work of art, and not secure any advantage to the public purse. No answer to this appeal appears in the published correspondence, but the solicitor's letter had the effect of causing Mr. Stevens to send down to St. Paul's all the finished marble work. Matters appeared to have remained in this position until the 24th of October, when Mr. Stevens was threatened with a suit at the instance of the Attorney-General. This Mr. Stevens said he had not the means of defending; he, therefore, resolved to give up possession of the model and materials of the monument. He was next ordered to discontinue any works in St. Paul's, and then the First Commissioner considered what he should do respecting the claim of the Crown against Mr. Stevens for the money he had received beyond what was due to him under his contract. He suggested that Mr. Stevens should memorialise the Treasury on the subject, and stated the resolve of the Board of Works to insure the completion of the monument by some sculptor of established eminence.

**Selby Abbey Church.**—A movement is being made for the purpose of replacing in the east window of this venerable pile the remarkable stained glass which formerly belonged to it. It appears that the right to repair this window rests by law in the receiver of the great tithes (Lord Londesborough). Some years ago, as the window was in a very shattered state, Mr. Petre, the then lay-rector, took out the lower part, intending, at his convenience, to restore and replace the original glass. The late Lord Londesborough had the glass taken to Grimston for his inspection, where it remained some time; and eventually it was sent back, probably with the idea of being faithfully restored, had his lordship lived; and it now remains in boxes, in the south aisle of the nave. According to Mr. J. Fowler, of Wakefield, the glass is of singular value, and belongs to the fourteenth century. He says,—"Certainly there is nothing in York Minster, which we always, with justice, regard as a mine of exquisite glazing, to compare with this window." The window represents "The Root of Jesse," or the genealogy of our Lord; and it possesses several special points of interest. It is to be hoped that the effort now being made will be successful.

**Subways in the City.**—Mr. Haywood, in his report on Street Tramways, mentioned in our last, makes a suggestion worth consideration. He says,—"There can be no doubt that the tramways will have to be disturbed at times by the gas and water companies, nor that when such is the case much more inconvenience will ensue both to the companies and the public than at present is the case; indeed, those companies are in the City likely to prove the source of great inconvenience to the tramways, and this, with other circumstances, points to subways as the remedy. It seems probable that in the course of a short time the gas company lighting the City will pay its maximum dividend of 10 per cent., after which its surplus profits must go towards a diminution in the price of gas, and it is worthy of consideration whether such surplus could not in the public interest be best employed in the formation of subways, so that the opening of the street surface might be obviated afterwards."

**Knightsbridge Barracks.**—A deputation has waited upon the Chancellor of the Exchequer, and urged him to proceed with the Bill, of which notice had been given, for the removal of Knightsbridge Barracks. Mr. Lowe assured the deputation that he was taking all necessary steps for the demolition of the barracks, which, if not pulled down, would cost the Government a considerable sum for repairs.

**White's Club House, St. James's-street** This property has been sold by auction. As an investment, it appeared that the rental was 2,100*l.* per annum for eleven years, when the lease to the club expires. The sum realised was 46,000*l.*, the purchaser being Mr. H. W. Eaton, M.P.

**The Alhambra Profits.**—The irrepressible Alhambra appears to be indebted to the licensing (or, in their case, the unlicensing) Middlesex magistrates for an increase of prosperity and profits, during the past half-year. The case resembles somewhat, in *this* respect, that of the coffee-hall in the Adelaide Gallery, to which they refused a music-licence some years ago,—for what precise reason it is hard to say, unless it were that this very temperate and well-conducted, though crowded, resort of respectable and intelligent people, for tea and talk, was open as a coffee-room, or *café, without music*, on Sundays, and stood opposite a church, the congregation of which made use of it for coffee, wine, and other refreshments. However, the refusal of the music-licence, which, by the bye, had been freely granted under a previous occupation, when *poses plastiques* and strong drinks were in the ascendant, not only did no injury to it, but saved the great cost of music, and seems to have decidedly benefited it. The report of the Alhambra directors for the half-year ending the 31st of December last has been issued, and states that the number of visitors during the half-year had been 417,360, as against 376,991 in the corresponding half-year of 1869, showing an increase of 40,369. The gross receipts have been 41,928*l.* 15*s.* 4*d.*, and the gross expenditure 32,505*l.* 2*s.* 4*d.* The difference between these sums represents the net profit on the half-year's working, — viz., 9,423*l.* 13*s.*, being 1,507*l.* 19*s.* 8*d.* in excess of the amount of profit realised in the corresponding half-year of 1869. A dividend is recommended at the rate of 25 per cent. per annum, free of income-tax, for the half-year, carrying forward a balance of 2,252*l.* Four years of this sort of management thus suffices to repay every shareholder his capital. It is said the Alhambra has got a theatre-licence, but will go on much as it was before the dancing-licence was taken away.

**Steam Cultivation.**—At a recent exhibition of the process of steam-ploughing, at Stowe Castle, the engine at work was a 12-horse power portable. The maker claims for it several specialities. The windlass, which is the principal feature of the apparatus, is an invention of Mr. Hayes, who has patented it. It has been described by the *Engineer* as one of the most ingenious combinations of mechanism in use. Its great advantage is, that when the cultivator reaches the headlands, the mere turning of a handle by the engine-driver throws the strap on to the opposite pulley, and the work goes on continually without stopping or reversing the engine. If it should be necessary to stop the cultivator at any point, the belt is thrown on to a loose pulley, occupying a central position between the working pulleys, the engine not being interfered with. There is also an arrangement by which the anchor-men in the field can stop the cultivator if all of them are out of sight of the engine-driver. The cultivator was one of Mr. Hayes's, and it is said to have broken up the ground in first-class style.

**Meters for Water Supply.**—A paper has been read at the Royal Scottish Society of Arts "On Water Meters, as in use by Water Companies, and Design for simplifying and cheapening their construction," by Mr. John Reid, F.R.S.S.A., Engineer and Manager of the Edinburgh and Leith Gas Company. Mr. Reid at some length explained the functions of the water-meter, and some of the difficulties attending their construction. He described a meter of his own invention so far as regarded the movement of the piston. This movement he likened to what takes place when turning a card over on one edge on a table,—sliding it back to its original position,—turning it again in the same direction on its opposite edge, and so on as before. A projecting part of the central spindle gives action to a registering index outside the instrument.

**The Engineer of the Cheltenham Waterworks Company.**—We are pleased to hear that the Cheltenham Waterworks Company have presented their engineer and manager with an honorarium of 100 guineas, in recognition of the valuable services rendered by him in the designing and construction of the new waterworks at Tewkesbury, under the powers of their last Act of Parliament.

**The "Captain."**—It is stated at Portsmouth that an attempt is about to be made by Mr. Griffith, a civil engineer, to raise the *Captain*, which foundered off the coast of Spain on the morning of the 7th of September last, but that he will receive no aid from the Government.

**Newspaper Press Fund.**—At a special general meeting, on the 4th inst., the committee reported that the accumulated capital of the Fund is now 5,500*l.* The roll-book comprises in the aggregate 239 members, 166 of whom are resident in the metropolis, and the remaining 73 in the provinces. At present the advantages of the fund are restricted to the subscribers to it. It has been suggested, and we think wisely, that the time has come when, in order to maintain for the Fund the sympathy and aid of the general public, some little change might be made in this respect. A committee has been appointed to consider the question. Mr. Godwin (in the chair), Lord Houghton, Mr. Mould, Mr. Findon, Mr. Hyde Clarke, Mr. Charley, M.P., Mr. Gruneisen, and others, took part in the business of the meeting. At the close it was announced that the Right Hon. the Earl of Carnarvon had consented to preside at the annual dinner to be held at Willis's Rooms on the 13th of May.

**The New Schools.** — In the Commons Mr. Hick asked the Vice-President of the Council why it was made a condition in new schools that, in order to be entitled to a building grant, they should not exceed 20 ft. in width; and, since it was found both inconvenient and difficult to comply with such condition, whether he would be disposed to modify it. Mr. Foster replied that this condition had been made by the Education Department after very considerable inquiry. He could hold out no hopes of modifying it, for two reasons. First, as building grants had come to an end, this was scarcely the time for making any alteration. Secondly, they did not consider it to be an advantage to have the schools wider; and, as so much a square foot was paid, the Education Department could not undertake to pay more public money than was necessary.

**The Bridge over the Stour.** — Tenders have been sent in for the bridge over the Stour, to communicate with the projected canal wharf, New-road. Eighteen plans and specifications were sent in from all parts of the kingdom; but as the council said nothing about the limit of cost, these vary in expense from 480*l.* to 3,000*l.* From the eighteen, those by Mr. George B. Ford, of Bursiem, have been selected; and the work will be commenced forthwith. The wharf will be in the immediate neighbourhood of some of the largest mills in the town, viz., Messrs. Brinton & Co.'s, Messrs. Dixon & Sons', Messrs. Morton & Son's, Stour Valley (Earl of Dudley's), Mr. Green's, Messrs. Watson & Naylor's, &c., and will be of immense service to manufacturers and merchants.

**Kencott Parish Church.**—In the chancel of this church on the south wall there is a monument set in a wooden case, with oak folding doors, like a triptych, to close over all and protect it from injury. It is to the memory of Richard Colchester, of Westbury, co. Gloucester, D.C.L., who died Sept. 11, 1643. Also to his wife Elizabeth, daughter of Sir Hugh Hammersley, Kt., Lord Mayor of London, by Mary, daughter of Baldwine Derham, of Derham, co. Norfolk. In the head of the Norman door of this church is a bold carving of Sagittarius, with the letters "Sagit."

**Portland Breakwater.**—On Saturday last, at noon, according to the *Times*, the operations connected with the construction of the Portland Breakwater were brought to a close by the depositing of the last stone, without the slightest display or ostentation, Mr. Coode, the engineer-in-chief, being present at the time. We have not heard whether there is to be any formal ceremony. The gales of the last five or six months, many of which have been unusually severe, have not done the slightest damage to the work. It may therefore be regarded not only as finished, but safe.

**Sale of Site of Newgate Market.**—Messrs. Winstanley & Horwood last week submitted for sale by auction, at the Mart, the site of Newgate Market, possessing two frontages of about 134 ft. each to the east and west, and two of about 87 ft. each to the north and south. The site contains about 10,100 square feet. It realised 20,000*l.* It is to be hoped proper arrangements have been made for the reservation of roads.

**Metropolitan Buildings Act.**—We understand that the Metropolitan Board of Works will bring in a Bill, with a view to a new Act, very nearly similar to the Bill read last session and withdrawn.

**The New Home and Colonial Offices.**—On Lord J. Manners asking the First Commissioner of Works, in the Commons, when it was intended to remove the block of houses between Parliament-street and King-street, facing the new Home and Colonial offices, Mr. Ayrton said a portion of the block of buildings referred to was in occupation as offices. The whole block could be pulled down when the new Home and Colonial offices were erected. A portion of the back had already been pulled down. Great inconvenience and loss would occur if the houses were all to be pulled down at once. In reply to a further question, Mr. Ayrton said there was no Act of Parliament which directed that the land should now be applied to public purposes. It was, however, competent to the Government to do what was necessary to secure proper approaches to the new offices. Those approaches would probably be best made by keeping the land enclosed.

**Serious Accident at a Circus.** — An accident, resulting in the death of two men and serious injury to five others, has occurred at Adams's Circus, in the course of erection in the Wholesale Market at Bolton. The building, which is in the form of a parallelogram, is of wood, and is being built by Mr. James Rigby, of Bolton, from the plans of Mr. Harrison. The sides of the circus were finished, and workmen were engaged putting on the roof; and while this was being done the whole mass of the roof fell into the body of the circus. Eight men were working below at the time, and two of these were killed by the falling beams, and three others seriously injured.

**The Windsor Surveyorship.**—The candidates for the office having been reduced to nine, and one of these having retired from the contest, the following presented themselves before the Board:—Mr. Byrne, Windsor; Mr. T. V. Davison, Gerard's Cross; Mr. Jennings, Lewisham; Mr. Nicholson, Luton; Mr. H. O. Smith, Croydon; Mr. Weaver, Leicester; Mr. Creane, Brackley. The voting then took place with this ultimate result:—Davison, 11; Byrne, 7. Mr. Davison was then duly elected. There were fifty-nine candidates.

**Royal Albert Hall.**—The programme of the State opening on the 29th inst. has been issued. An address will be read by his Royal Highness the Prince of Wales. Her Majesty will make a reply, and formally open the Hall, which will be announced by trumpets and a Royal salute in the Park. A cantata, composed expressly by Sir Michael Costa, will be performed by full orchestra and chorus of 1,000 performers. After her Majesty has quitted the Hall, a grand miscellaneous concert will be given, to be conducted by Sir Michael Costa.

**The Trades Movement.**—The operative joiners in Ayr, to the number of 60 or 80, have struck work, in consequence of the employers' refusal to accept their offer of beginning work at an advance of a farthing per hour at present, and another farthing three months hence. They now demand the advance originally sought, of a halfpenny per hour. It is believed that the masters are to stand by their original offer of a farthing advance unconditionally, and that the workmen have expressed a desire to have a friendly conference, in order, if possible, to come to an amicable arrangement.

**Art Prizes, Crystal Palace.**—The directors offer prizes for "the best pictures of the English and foreign schools, to be exhibited at the Crystal Palace on and from the 1st of May, 1871, and during the continuance of the International Exhibition in London." The prizes for the English school will be:—For the best historical or battle picture, in oils, 40*l.*; for any other figure subject, in oils, 35*l.*; for landscapes or sea-pieces, in oils, 30*l.*; for the best water-colour drawing, irrespective of subject, 25*l.* Foreigners will receive medals in lieu of money prizes.

**Memorial Fountain of the late Mr. Joseph Payne.**—The Metropolitan Board of Works have informed the Secretary to the Drinking Fountain Association that they are not prepared to accede to his application that a fountain, in memory of the late Mr. Payne, should be placed upon the Embankment.

**The Proposed Drinking-Fountain in Smithfield.**—The Markets Improvement Committee of the Corporation have selected eight of the designs for the new drinking-fountain in Smithfield from which to make their final choice.

**The Dilapidation of York Minster.**—Those who are acquainted with York Minster will remember the south transept, which is the work of the thirteenth century, and was erected by Walter de Grey, one of the archbishops of York. It has been for some time surmised that this portion of the building was in such a dilapidated condition as to require early attention, in order to insure its preservation. The dean and chapter have consulted Mr. G. Street, of London, who has made an examination of the south transept, the result of which was to prove that the conjectures above alluded to were well founded. An appeal to the county for funds is probable.

**Prevention of Rust.**—Dr. Crace Calvert states that iron immersed for a few minutes in a solution of carbonate of potash or soda will not rust for years, though exposed continually in a damp atmosphere. It was believed long ago by soap and alkali merchants that the caustic alkalies (soda and potash) protected iron and steel from rust, but that the components of these salts preserved the same property as they do in a caustic state now. It does not seem to matter whether the solution is made with fresh or sea water.

**"Safes."**—In Lord Enfield's reply to Colonel Sykes, with reference to the destruction by fire of the Consular Buildings at Shanghai, reported in the Parliamentary intelligence, he said that the wills and other valuable documents were preserved in a safe. We are asked to mention that the *Shanghai Courier*, of December 24th, 1870, stated that they were preserved in two of Milner's safes; and that the titles and bills of sale, which were in a common iron safe, were all destroyed.

**Report on the Sanitary Condition of Ross, Herefordshire.**—Dr. R. T. Thorne has reported on the sanitary state of Ross, where fever and diarrhœa have been prevalent. Dr. Thorne shows the great necessity for sanitary improvement, and recommends various remedial measures, especially as regards waterclosets and cleansing of privies and midden heaps, thorough sewerage, and water supply; the appointment of a nuisance inspector, and a medical officer of health, &c.

**Society for the Encouragement of the Fine Arts.**—On the 2nd inst. a lecture was given in the Society's Rooms, 9, Conduit-street, "On the Common Elements of Beauty in Race, in Georgia, Circassia, the Holy Land, and Britain," by Mr. Hyde Clarke, in which the author brought forward a theory of the principle on which a general standard of beauty in art has been accepted in classic times and in the modern age. Dr. Dresser presided.

**Avon Intercepting Sewer, Bristol.**—We understand this important work has been entrusted to Messrs. Neave & Fry, who have lately finished extensive drainage works at Portsmouth. The contract embraces about 8,000 yards of brick sewers, varying in size from 3 ft. high by 2 ft. 6 in. wide to 7 ft. 6 in. in diameter. The works will be commenced immediately, and are to be completed within eighteen months.

**St. Peter's Church, Clerkenwell.**—Messrs. Lavers, Barraud, & Westlake request us to say, with reference to the west window of this church, described in our columns as "from their hands," that they "merely executed the work from a design sent to them, and are therefore not responsible for it."

**St. Edmund's, Salisbury.**—The mosaic reredos here was designed and executed by Messrs. D. Bell & R. Almond, under the direction of Mr. G. G. Scott, R.A., and not by Dr. Salviati, as stated.

**The Institution of Surveyors.**—The next meeting will be held on Monday, March 13th, when papers on "Tithes and Tithe Commutation" will be read by Messrs. W. Sturge and J. Oakley.

## TENDERS.

For main drainage works, Avon intercepting sewer district of Bristol. Mr. F. Ashmead, C.E. :—

| | |
|---|---|
| Moore | £48,744 0 0 |
| Merreweather | 45,628 0 0 |
| Warburton | 38,445 0 0 |
| Blinkhorn | 36,331 0 0 |
| Baker | 36,161 0 0 |
| Storkey | 35,596 0 0 |
| Kyan & Co. | 30,918 0 0 |
| Jones & Jepson | 30,179 0 0 |
| Perry & Co. | 29,498 0 0 |
| Furniss | 29,364 0 0 |
| Neave & Fry | 28,838 0 0 |

For Congregational Chapel and School, Thame. Mr. W. F. Poulton, architect. Quantities not supplied :—

| | |
|---|---|
| Cooper | £1,907 0 0 |
| Holland | 1,505 0 0 |
| Spicer | 1,435 0 0 |
| Wells (accepted) | 1,110 10 0 |

For New Wesleyan Chapel, North Woolwich. Mr. E. Hoole, architect :—

| | |
|---|---|
| Wright | £936 0 0 |
| Kelly | 786 0 0 |
| Hobson (accepted) | 780 0 0 |

For rebuilding No. 28, Holywell-street, Strand. Mr. T. H. Rowley, architect. Quantities supplied by Mr. J. T. Green :—

| | |
|---|---|
| Sharpington & Cole (accepted) | 701 0 0 |

For fixtures at S. Luke's Infirm Wards. Mr. H. Saxon Snell, architect :—

| | |
|---|---|
| Bamford (accepted) | £130 0 0 |

Accepted for three shops, at Blackburn. Mr. G. Truefitt, architect :—

| | |
|---|---|
| Calvert (Bricklayer) | £782 0 0 |
| Patteson (Mason) | 1,100 0 0 |
| H. & A. Duckworth (Carpenter and Joiner) | 1,025 0 0 |
| Jepson & Isherwood (Plasterer) | 210 0 0 |
| Ward (Plumber) | 285 0 6 |
| Ashcroft (Slater) | 36 1 3 |
| Bellhouse & Co. (Ironworks) | 41 10 0 |
| Davies (Bellhanger) | 31 0 0 |

For additions to Borrowstone, Kincardine O'Neil, Aberdeenshire, for Captain Hart. Mr. G. Truefitt, architect :—

| | |
|---|---|
| McAndrew | £1,139 8 0 |
| Garvie | 1,100 0 0 |
| Henderson | 1,020 0 0 |
| Warrack & Daniel | 1,012 0 0 |

For nine warehouses, Monkwell-street, City, E.C., Mr. H. Ford, architect. Quantities supplied by Messrs. Hovenden & Heath :—

| | |
|---|---|
| Gammon & Sons | £14,919 0 0 |
| Williams & Co. | 14,877 0 0 |
| Tongue | 14,675 0 0 |
| Pritchard | 14,512 0 0 |
| Stimpson | 14,316 0 0 |
| Blesse | 14,250 0 0 |
| Perry & Co. | 14,027 0 0 |
| Dove, Brothers | 13,887 0 0 |
| Nightingale | 13,878 0 0 |
| Brown & Robinson | 13,791 0 0 |
| Crabb & Vaughan | 13,313 0 0 |
| Conder | 13,077 0 0 |
| Brass | 13,034 0 0 |
| Myers & Sons | 12,896 0 0 |
| Hill, Keddell, & Waldram | 12,856 0 0 |
| Scrivener & White | 12,745 0 0 |
| Henshaw (accepted) | 12,653 0 0 |

For a rectory at Croydon, Surrey. Mr. J. Berney, architect :—

| | |
|---|---|
| Hollidge | £2,170 0 0 |
| Roberts | 2,140 0 0 |
| Crabb & Vaughan | 1,950 0 0 |
| Wright | 1,850 0 0 |

For alterations and additions to Elizabeth House, Hampstead, for Mr. H. Smith. Mr. W. Norris, surveyor :—

| | | | If Basement is omitted. | |
|---|---|---|---|---|
| Williams & Son | £1,116 | ... | Deduct ... | £142 |
| Hayworth | 1,055 | ... | do. ... | 140 |
| Boden | 1,010 | ... | do. ... | 130 |
| Roberts | 999 | ... | do. ... | 145 |
| Till | 900 | ... | do. ... | 115 |
| Sawyer | 839 | ... | do. ... | 90 |

For St. Faith's schools, Maidstone. Mr. E. W. Stephens, architect :—

| | |
|---|---|
| Hammond | £1,306 0 0 |
| Peskett & Taylor | 1,240 0 0 |
| Clark & Son | 1,095 0 0 |
| Bridge | 1,085 0 0 |
| Grinsted | 1,077 0 0 |
| Vaughan | 1,075 0 0 |
| Holloway | 1,064 0 0 |
| Anscombe | 1,060 0 0 |
| Cox, Brothers | 1,050 0 0 |
| Avard | 1,045 0 0 |
| Clement & Wallis | 1,040 0 0 |
| Wright, Brothers, & Goodchild | 1,015 0 0 |

For public-house, Queen Victoria-street. Mr. Merrick, architect :—

| | |
|---|---|
| Crabb & Vaughan | £1,895 0 0 |
| Oldny | 1,837 0 0 |
| Weber | 1,715 0 0 |
| Colts | 1,749 0 0 |
| Rade | 1,745 0 0 |
| Sharp | 1,697 0 0 |
| Wicks, Bange, & Co. | 1,687 0 0 |
| Ellis | 1,649 0 0 |
| Patram | 1,650 0 0 |
| Pater | 1,600 0 0 |
| Ball | 1,597 0 0 |
| Cullum | 1,593 0 0 |
| Blackmore & Morley | 1,568 0 0 |
| Lacey | 1,550 0 0 |
| Stem | 1,532 0 0 |
| Eaton | 1,532 0 0 |
| Marion | 1,530 0 0 |
| Warn | 1,500 0 0 |
| Ingram | 1,495 0 0 |
| Hurst | 1,469 0 0 |
| Watson | 1,460 0 0 |
| Rooney, Brothers | 1,455 0 0 |
| Lambey & Co. | 1,425 0 0 |
| Mars | 1,396 0 0 |

For alterations and repairs to five houses in Croydon-road, Penge. Mr. P. D. Tuckett, surveyor :—

| | |
|---|---|
| Jerrard | £206 5 0 |
| Hoare & Postlethwaite | 200 0 0 |
| White | 188 0 0 |
| Shapley & Webster (accepted) | 163 0 0 |
| Diplock | 116 15 0 |

For alterations and additions to premises in Deansgate, Manchester. Mr. Sherwin, architect. Quantities supplied :—

| | |
|---|---|
| Statham & Sons | £1,340 0 0 |
| Winter | 1,190 0 0 |
| Wade, Brothers | 1,160 0 0 |
| Ratcliffe | 1,107 0 0 |
| Terras | 1,103 0 0 |
| Wilson | 1,103 0 0 |
| Herd & Eadie | 1,100 0 0 |
| Cardwell | 1,095 0 0 |

For ornamental cast-iront fronts and revolving steel shutters :—

| | |
|---|---|
| Clark & Company | £220 5 0 |

For the erection and completion of three houses at Brooklands. Mr. Sherwin, architect. Quantities supplied :—

| | |
|---|---|
| Davidson | £1,043 0 0 |
| Ratcliffe | 990 15 0 |
| Winter | 975 0 0 |
| Herd & Eadie | 966 0 0 |
| Latham | 950 0 0 |
| Cardwell | 915 0 0 |

For the erection and completion of a ragged school and Working-men's Church, Lombard-street, Deansgate, Manchester. Mr. Sherwin, architect. Quantities supplied :—

| | |
|---|---|
| Wade, Brothers | £800 0 0 |
| Terras | 732 0 0 |
| Statham & Sons | 720 0 0 |
| Winter | 720 0 0 |
| Wilson | 712 0 0 |
| Herd & Eadie | 688 0 0 |
| Cardwell | 685 0 0 |

For new building in St. Paul's-churchyard. Mr. Henry S. Legg, architect :—

| | |
|---|---|
| Hill | £2,164 0 0 |
| Brass | 1,971 0 0 |
| Cooke | 1,950 0 0 |
| Condor | 1,888 0 0 |
| Patman & Fotheringham | 1,887 0 0 |
| Elkington | 1,764 0 0 |
| Colls | 1,723 0 0 |

Accepted for offices at Kidsgrove, Staffordshire. Mr. G. B. Ford, architect :—

| | |
|---|---|
| Booth | £488 16 0 |

Accepted for schools and teacher's house at Milton, Stoke-on-Trent :—

| | |
|---|---|
| Mop | £757 0 0 |

For first portion of alterations to Basford Hall, near Newcastle-under-Lyme. Mr. G. B. Ford, architect :—

| | |
|---|---|
| Bradbury | £225 0 0 |

Accepted for woodwork in House at Chesterton. Mr. G. B. Ford, architect :—

| | |
|---|---|
| Bennett | £120 0 0 |

Accepted for houses at Chell, near Tunstall. Mr. G. B. Ford, architect :—

| | |
|---|---|
| Bennett & Co. | £380 0 0 |

For main sewerage works, for the Township of Sale, Cheshire. Contracts Nos. 4, 5, 6, and 7. Mr. A. G. McBeath, C.E. :—

| | Contract No. 4. | Contract No. 5. | Contract No. 6. | Contract No. 7. |
|---|---|---|---|---|
| Jewitt & Nicholl | £5097 | £2775 | £2329 | £1366 |
| Naylor, Brothers | 4786 | 1900 | 1700 | 920 |
| Taylor | 3500 | 2012 | 1561 | 1000 |
| T. & W. Meadows | 2537 | 1016 | 1371 | 1113 |
| Hartley | 2742 | 1362 | 1108 | 696 |
| Thane | 2320 | 1259 | 986 | 555 |
| Gilbert & Sharp | 2225 | 1234 | 952 | 669 |
| W. & J. Worthington | 2121 | 1183 | 953 | 720 |
| Dawson | 2155 | 1187 | 909 | 563 |
| Kirkley & Hamnett | 2016 | 1111 | 979 | 681 |
| Woolfenden | 1965 | 1150 | 920 | 630 |
| Jeffreys (accepted) | 1723 | 1061 | 867 | 582 |
| Hickman | 2662 | 1511 | 1175 | ... |
| Duckworth | 2523 | 1370 | ... | ... |
| Lee | ... | 1460 | ... | ... |

For alterations and repairs to eight houses, at Sutton Surrey. Mr. P. D. Tuckett, surveyor :—

| | |
|---|---|
| Ashby | £339 0 0 |
| Potter & Ferrige | 312 0 0 |
| Hoare & Postlethwaite (three houses only) | 175 0 0 |
| Shapley & Webster (accepted) | 203 0 0 |

For the erection of schools and class-rooms in connexion with the Wesleyan Chapel, Mostyn-road, Brixton. Messrs. J. Tarring & Son, architects :—

| | |
|---|---|
| Hill & Sons | £2,137 0 0 |
| Henshaw | 1,891 0 0 |
| Shurmur | 1,799 0 0 |
| Myers & Son | 1,794 0 0 |
| Thompson | 1,780 0 0 |
| Shepherd | 1,735 0 0 |

## TO CORRESPONDENTS.

Forward.—Col. S.—C. C.—F. A.—H. S. S.—J. N.—S. F.—I. B. & W.—W. L. S.—M. & Son.—W. J. M.—M. J. L.—S. S.—M. M.—J. S.—T. J. H.—J. L.—F. C.—F. R. M.—G. L.—F. S.—A. W. F.—P. & R.—T. L. H.—T. & Son—J. S. R.—N. & F.—F. S. H.—C. B. O.—C. & V.—W. N.—Not an architect.—Smoked out.—C. L. E.—G. M.—P. D. T.—Improver (the parts shown, if old work, are of the end of the thirteenth or beginning of the fourteenth century. The upper part of tower would seem to be modern).—J. H.—(in type).—On Limes and Cements, in our next.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.